CITY OF CARLSBAD
ENGINEERING STANDARDS

VOLUME 3 - STANDARD DRAWINGS AND NOTES

CHAPTER 1 – CITY OF CARLSBAD STANDARD DRAWINGS

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DWG NO.

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S-7 ..... Sewer Lateral
S-8 ..... Sewer Lateral (Deep Cut)
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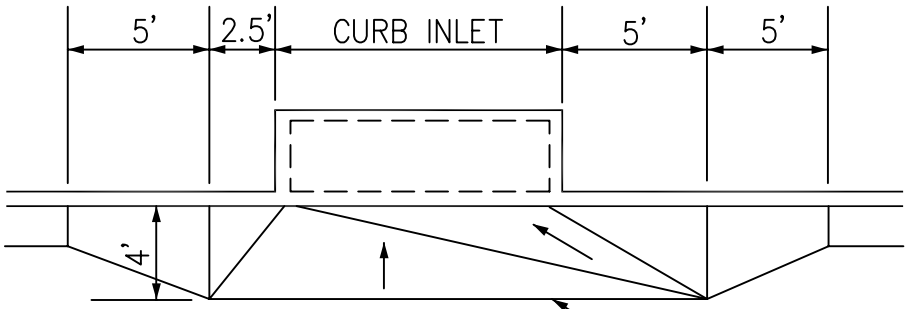
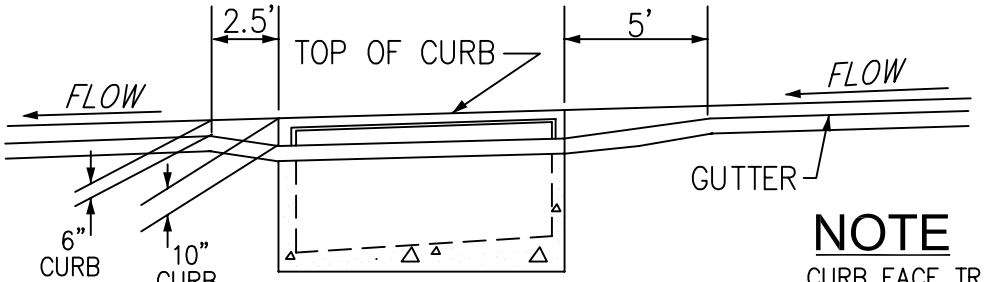
CONTINUOUS GRADE



PLAN

MEET EXISTING PAVEMENT OR STREET GRADE

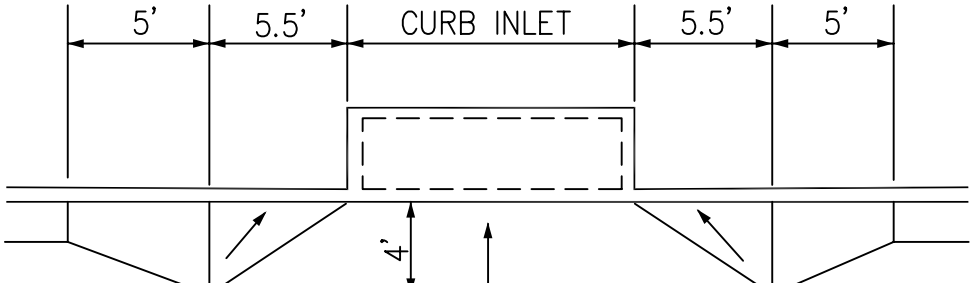


SECTION

NOTE

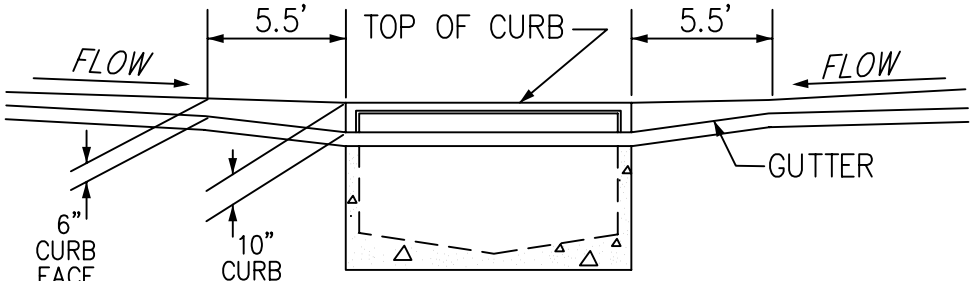
CURB FACE TRANSITIONS AND WARP AREAS SHALL NOT EXTEND INTO CURB RETURNS, DRIVEWAYS, ALLEY ENTRANCES, OR ANY OTHER CURB OPENING. DEPRESSION SHALL BE 4".

SUMP CONDITION



PLAN

MEET EXISTING PAVEMENT OR STREET GRADE



SECTION

REV.	APPROVED	DATE

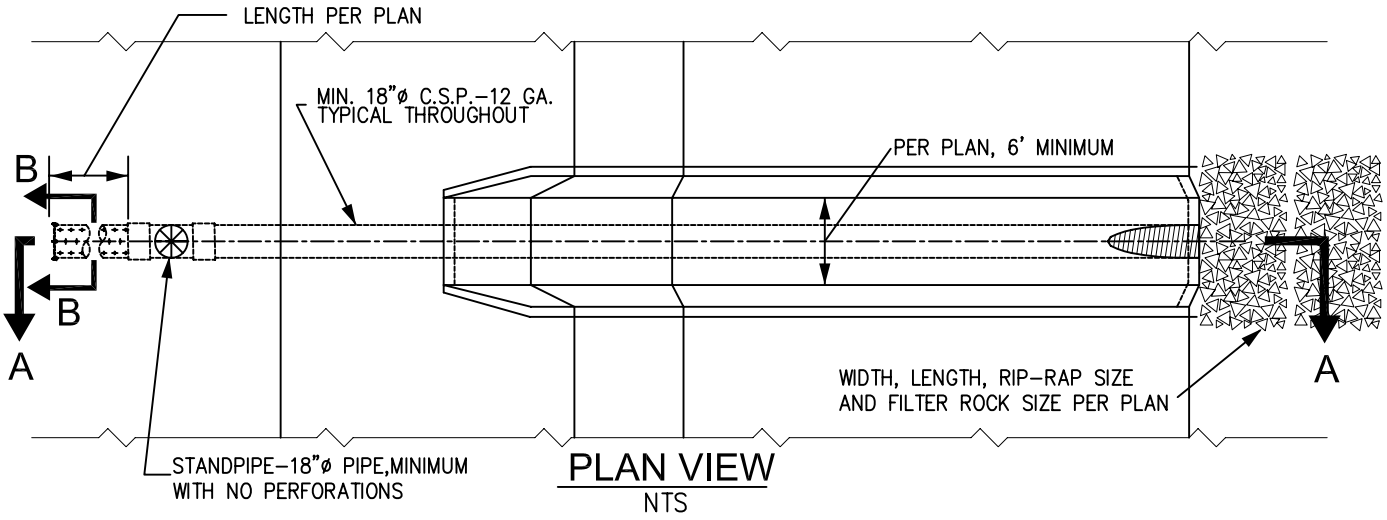
CITY OF CARLSBAD

LOCAL DEPRESSION

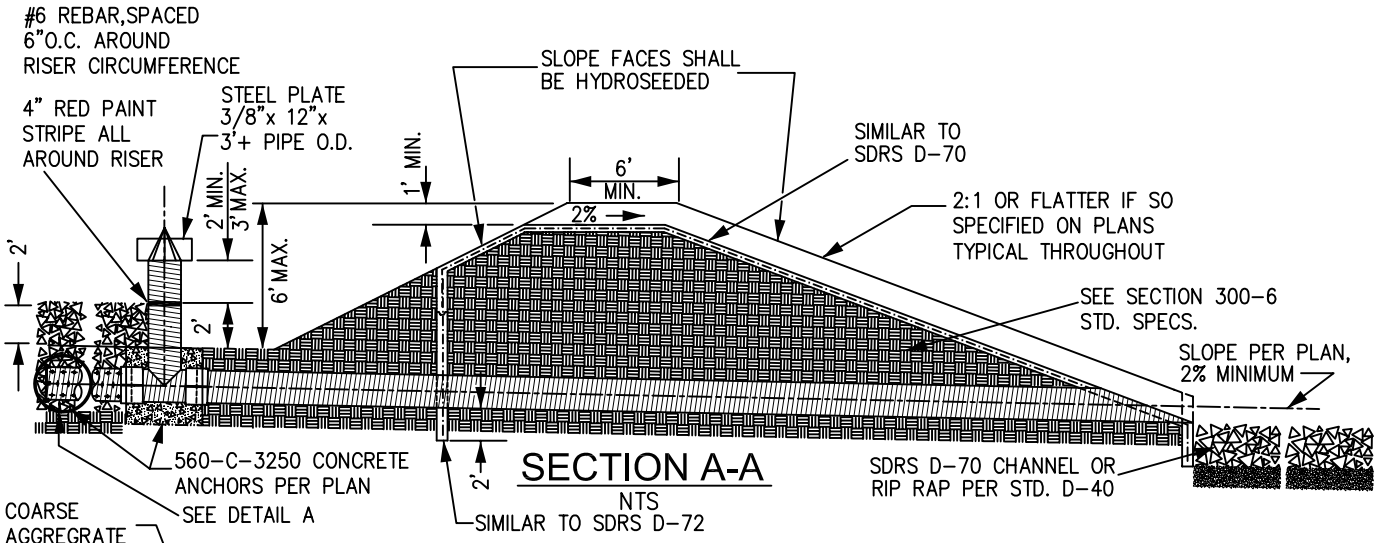
6/04

CITY ENGINEER — DATE

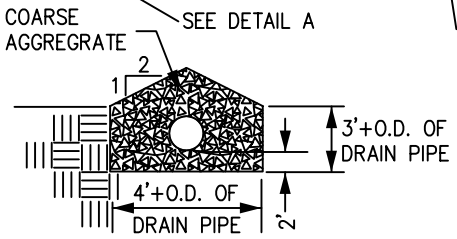
SUPPLEMENTAL STANDARD NO. DS-1



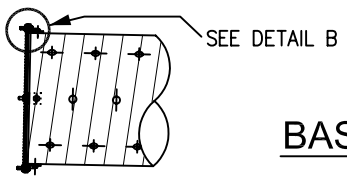
PLAN VIEW
NTS



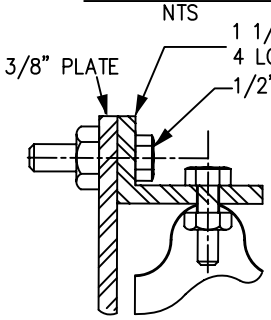
SECTION A-A
NTS



SECTION B-B
NTS



DETAIL A
NTS



DETAIL B
NTS

BASIN CAPACITY TABLE
(IN CUBIC YARDS)

TRACT AREA (ACRES)	AVERAGE SLOPES					
	2%	5%	8%	10%	12%	15%
10	270	350	370	400	450	500
15	400	420	460	600	675	750
20	540	700	740	800	900	1000
40	1080	1400	1480	1600	1800	2000
80	2160	2800	2960	3200	3600	4000
100	2700	3500	3700	4000	4500	5000
150	4000	4200	4600	6000	6750	7500
200	5400	7000	7400	8000	9000	10000

NOTES:
1) DESILTATION BASINS BUILT ON LOTS ADJACENT TO DWELLINGS SHALL BE COMPLETELY LINED WITH 3" GUNITE.
2) ALL STEEL PIPE AND HARDWARE TO BE HOT DIP GALVANIZED AFTER FABRICATION.

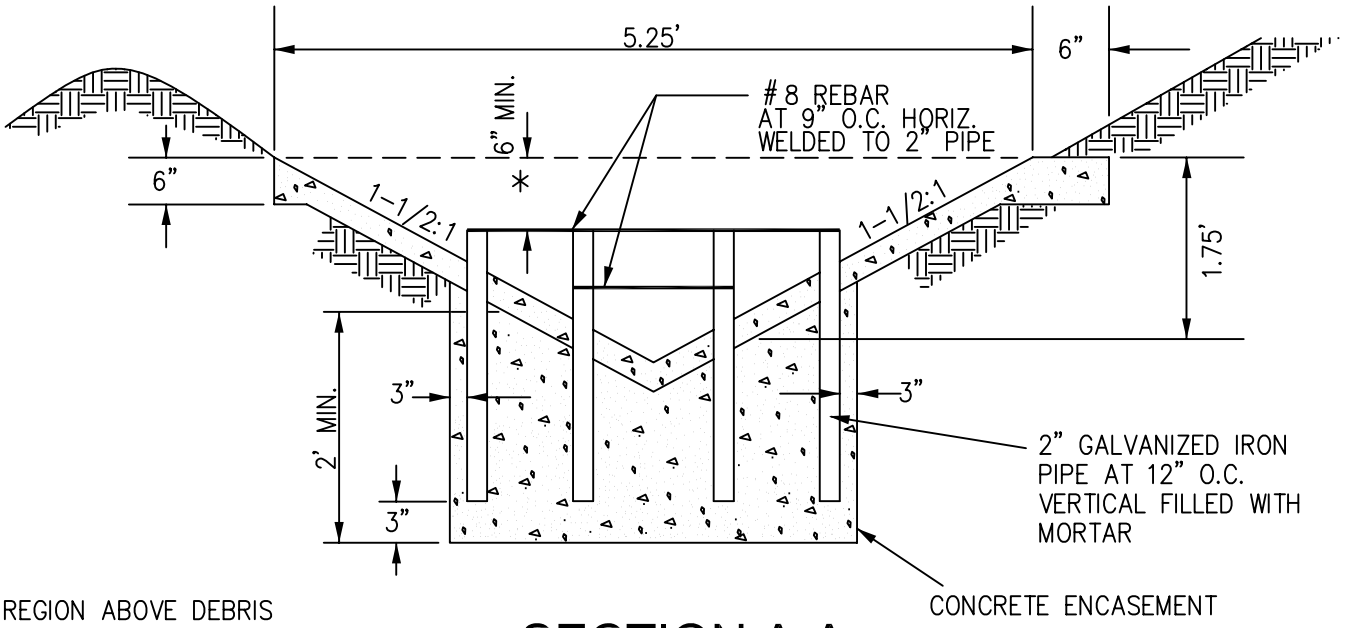
REV.	APPROVED	DATE

CITY OF CARLSBAD

TEMPORARY DESILTATION BASIN OUTLET AND CAPACITY TABLE

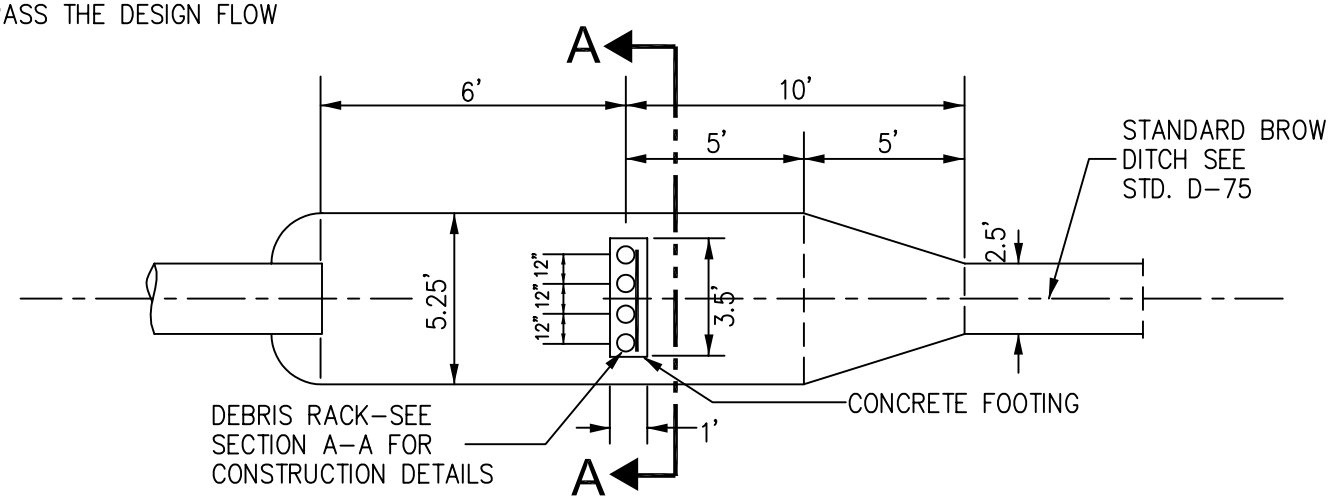
6-04
CITY ENGINEER — DATE

SUPPLEMENTAL STANDARD NO. DS-3

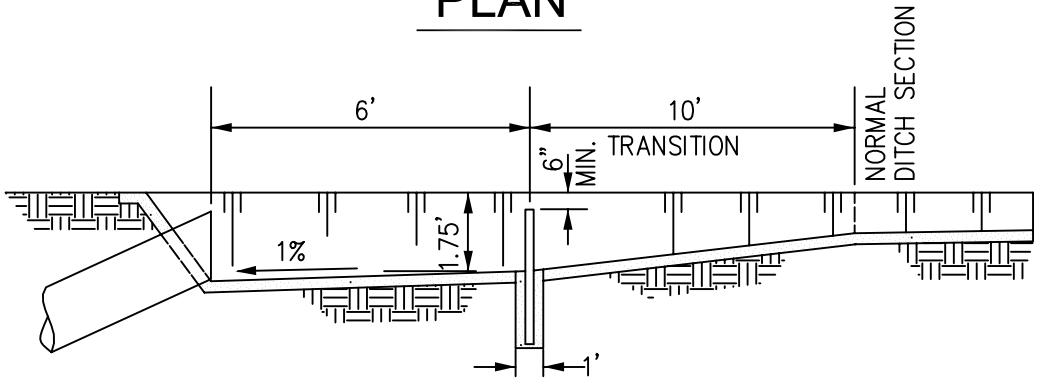


* REGION ABOVE DEBRIS RACK SHALL HAVE AN AREA SUFFICIENT TO PASS THE DESIGN FLOW

SECTION A-A



PLAN



ELEVATION

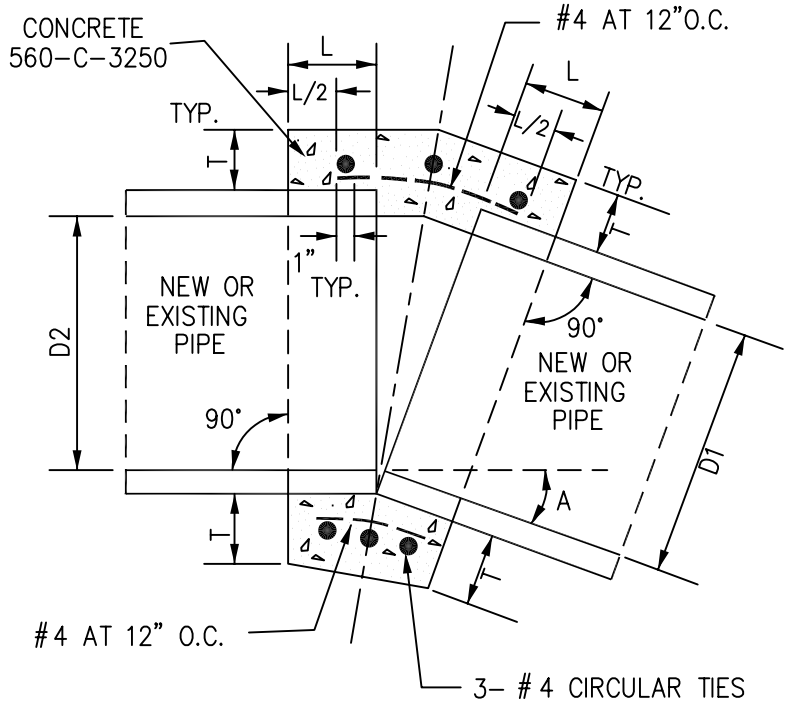
REV.	APPROVED	DATE

CITY OF CARLSBAD

BROW DITCH DEBRIS RACK

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. DS-4



D	L	T
12"	1'-0"	4"
18"	1'-0"	5"
24"	1'-0"	6"
36"	1'-6"	8"
48"	1'-6"	10"
57"	1'-6"	10"
60"	1'-9"	11"
66"	1'-9"	11"

NOTES:

1). A CONCRETE COLLAR IS REQUIRED WHERE THE CHANGE IN GRADE EXCEEDS 0.10 FT. PER FT.

2). WHERE PIPES OF DIFFERENT DIAMETERS ARE JOINED WITH A CONCRETE COLLAR, L AND T SHALL BE THOSE OF THE LARGER PIPE. D=D1 OR D2 WHICHEVER IS GREATER.

3). FOR PIPES LARGER THAN 66" A SPECIAL COLLAR DETAIL IS REQUIRED.

4). FOR PIPE SIZE NOT LISTED USE NEXT SIZE LARGER.

5). OMIT REINFORCING ON PIPES 24" AND LESS IN DIAMETER AND ON ALL PIPES WHERE ANGLE A IS LESS THAN 10°.

6). WHERE REINFORCING IS REQUIRED THE DIAMETER OF THE CIRCULAR TIES SHALL BE D+(2xWALL THICKNESS)+8".

7). WHEN D1 IS EQUAL TO OR LESS THAN D2, JOIN INVERTS AND WHEN D1 IS GREATER THAN D2 JOIN SOFFITS.

8). PIPE MAY BE CORRUGATED METAL PIPE, CONCRETE PIPE OR REINFORCED CONCRETE PIPE.

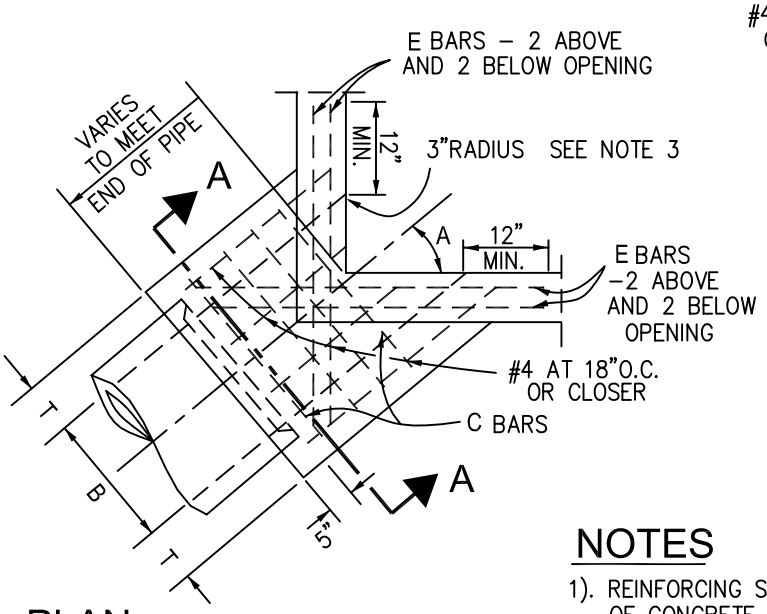
REV.	APPROVED	DATE

CITY OF CARLSBAD

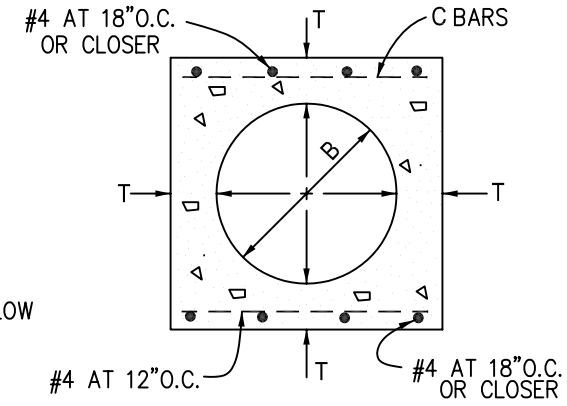
CONCRETE PIPE COLLAR
FOR PIPES 12" THROUGH 66"

CITY ENGINEER — 6-04 DATE

SUPPLEMENTAL STANDARD NO. DS-5



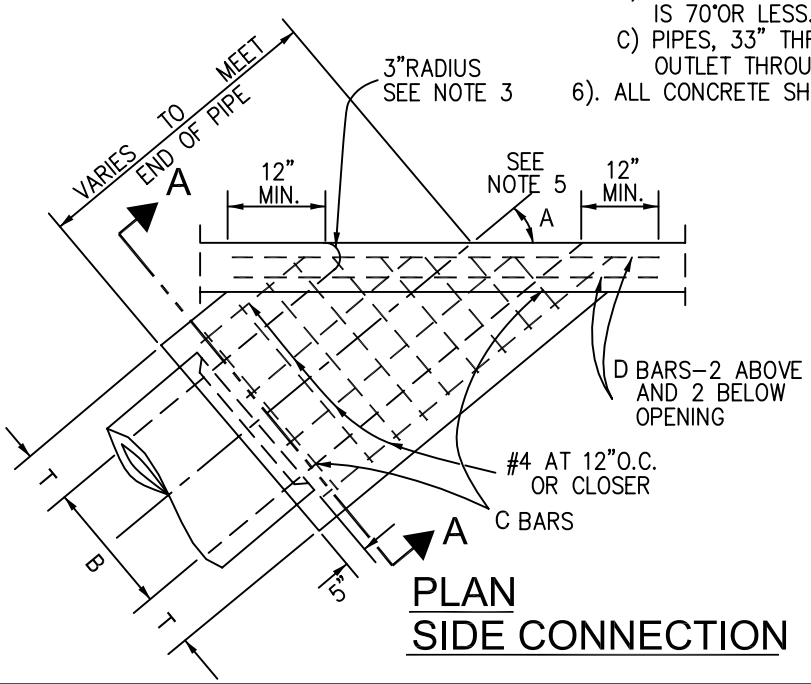
PLAN
CORNER CONNECTION



SECTION A-A

NOTES

1). REINFORCING STEEL SHALL BE 1–1/2" CLEAR FROM FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
2). REINFORCING STEEL FOR INSIDE FACE OF CURB INLET BASIN SHALL BE CUT AT CENTER OF OPENING AND BENT INTO WALLS OF MONOLITHIC CONNECTION. REINFORCING STEEL FOR OUTSIDE FACE OF CATCH BASIN WALL SHALL BE CUT 2" CLEAR OF OPENING.
3). CONNECTION SHALL BE POURED MONOLITHIC WITH CURB INLET. THE ROUNDED EDGE OF OUTLET SHALL BE CONSTRUCTED BY POURING CONCRETE AGAINST A CURVED FORM WITH A RADIUS OF 3".
4). FLOOR OF STRUCTURE SHALL BE STEEL–TROWELED TO SPRING LINE.
5). CONNECTIONS SHALL BE CONSTRUCTED WHEN:
   A) PIPES, 12" THROUGH 72" IN DIAMETER, INLET OR OUTLET THROUGH CORNER OF CURB INLET.
   B) ANGLE A, FOR PIPES 24" THROUGH 30" IN DIAMETER, IS 70°OR LESS.
   C) PIPES, 33" THROUGH 72" IN DIAMETER, INLET OR OUTLET THROUGH THE SIDE WALL OF CURB INLET.
6). ALL CONCRETE SHALL BE TYPE 560–C–3250.



PLAN
SIDE CONNECTION

B	T	C BARS	D AND E BARS
12"	4"	#4 AT 6" O.C.	#5
15"	4–1/4"		
18"	4–1/2"		
21"	5"		
24"	5–1/4"		
27"	5–1/2"		
30"	6"		
33"	6–1/4"		
36"	6–1/2"		
39"	7"		

B	T	C BARS	D AND E BARS
42"	7–1/2"	#5 AT 6" O.C.	#6
45"	7–3/4"		
48"	8"		
51"	8–1/2"		
54"	9"		
57"	9–1/4"		
60"	9–1/2"		
63"	10"		
66"	10–1/4"		
69"	10–3/4"		
72"	11"		

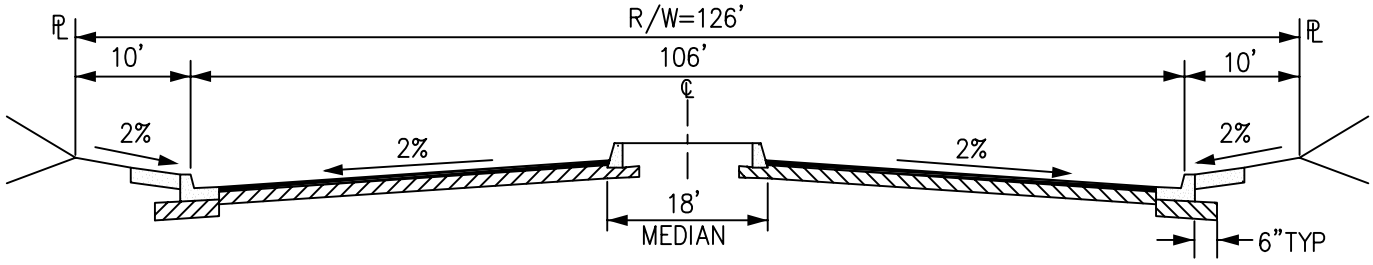
REV.	APPROVED	DATE

CITY OF CARLSBAD

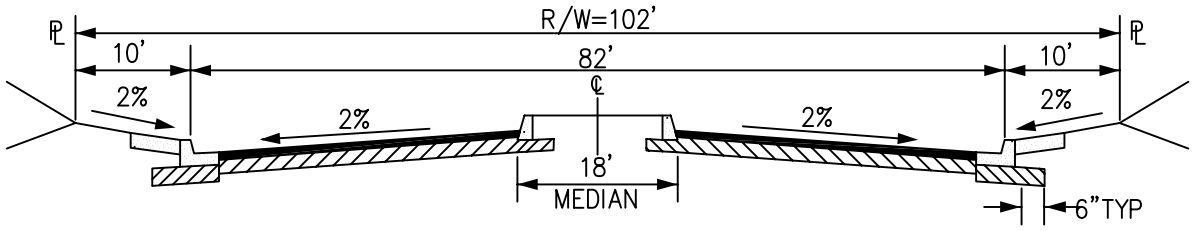
CONNECTION TO CURB INLET
FOR PIPES 12" THROUGH 72"

6–04
CITY ENGINEER DATE

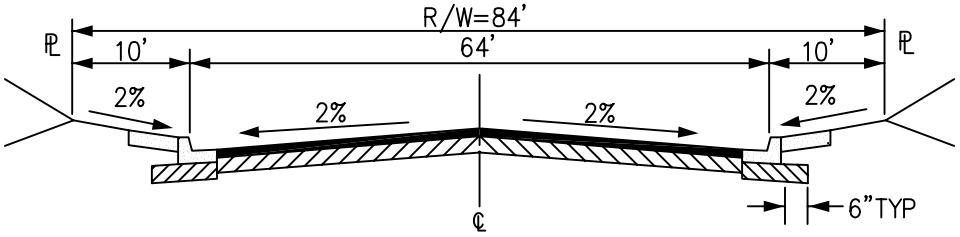
SUPPLEMENTAL STANDARD NO. DS-9



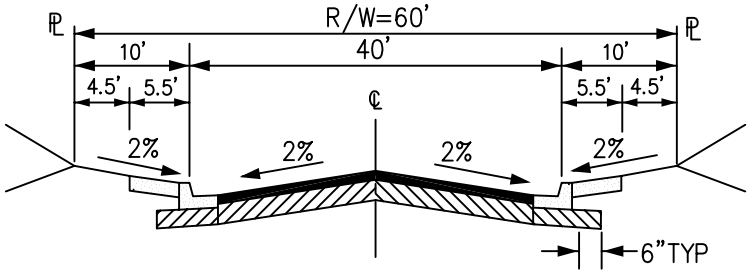
PRIME ARTERIAL STREET



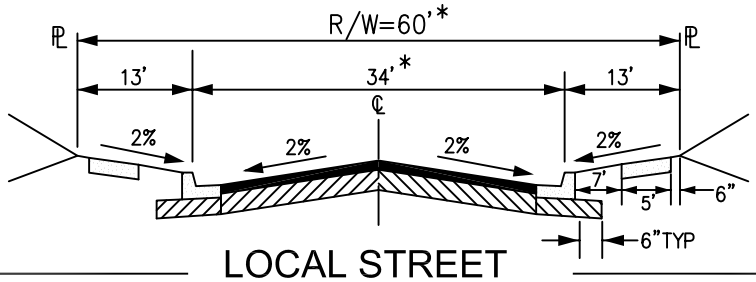
MAJOR ARTERIAL STREET



SECONDARY ARTERIAL STREET



COLLECTOR STREET



LOCAL STREET

* FOR CUL-DE-SACS
R/W = 56'
CURB TO CURB = 36'

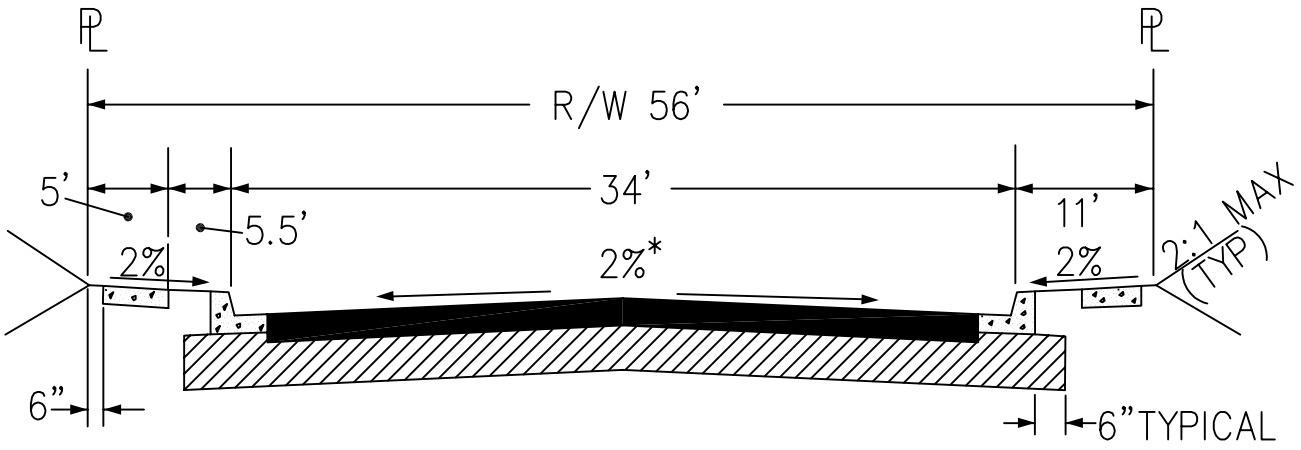
REV.	APPROVED	DATE

CITY OF CARLSBAD

STANDARD STREET WIDTHS

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-1



* CROSS SLOPE MAY VARY TO MEET DESIGN PARAMETERS. GRADE DIFFERING FROM TYPICAL 2% SHALL RECEIVE PRIOR APPROVAL FROM THE CITY ENGINEER.

REV.	APPROVED	DATE

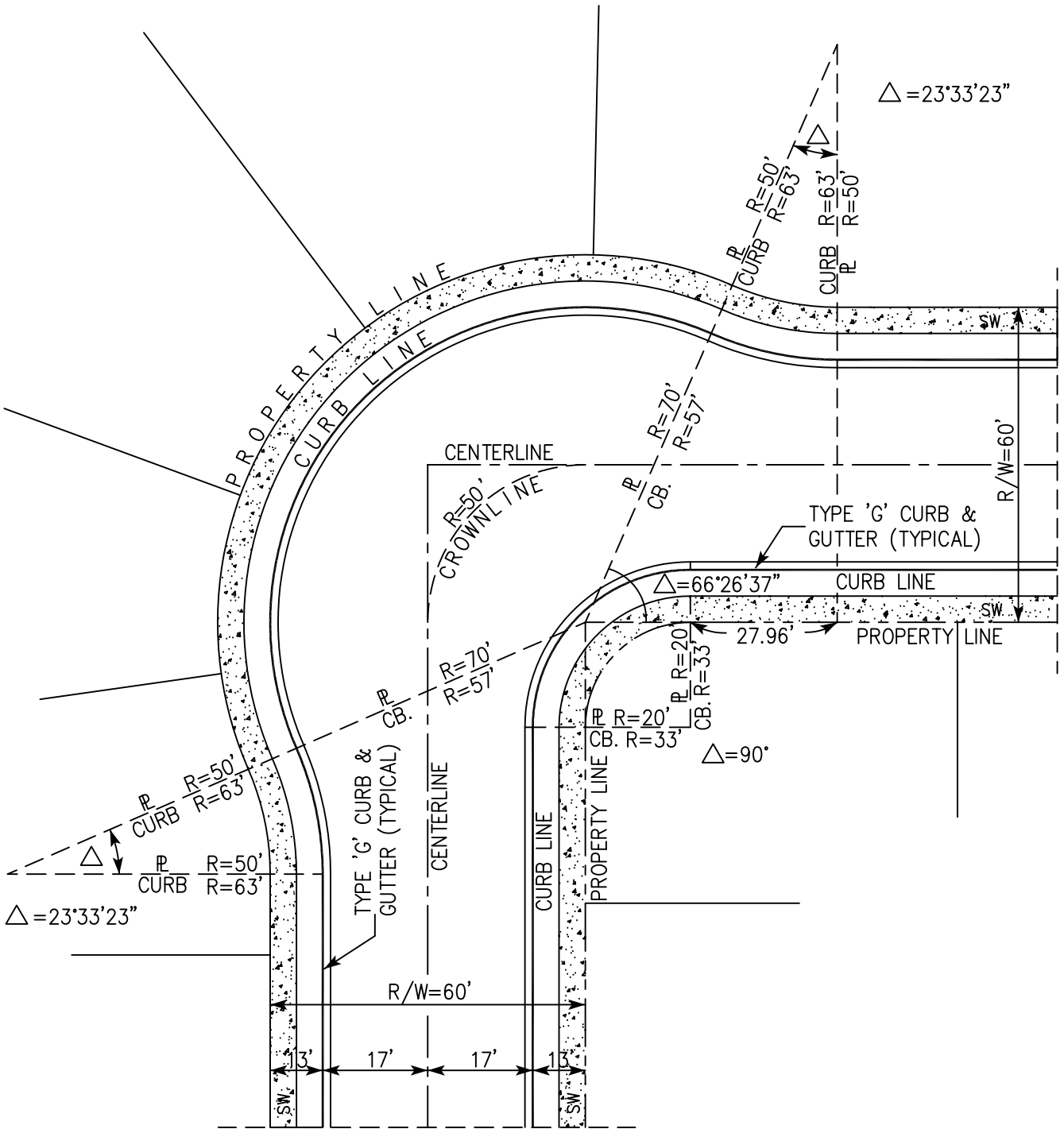
CITY OF CARLSBAD

HILLSIDE STREET

Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-1A



PLAN

NOTE: MINIMUM 1.0% ON ALL HORIZONTAL CURVE GRADES

REV.	APPROVED	DATE

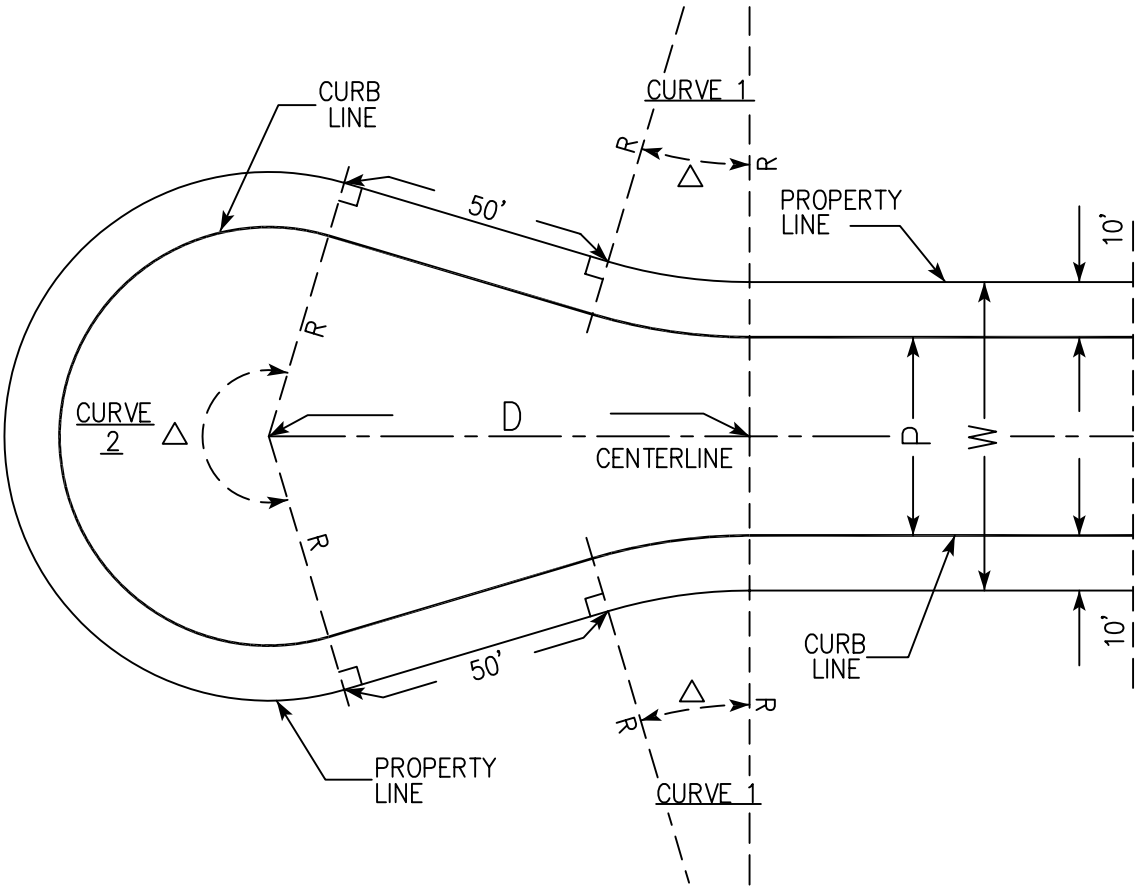
CITY OF CARLSBAD

STANDARD KNUCKLE

Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-2



PLAN

CURVE 1				CURB			PROPERTY LINE		
W	P	D	△	R	L	T	R	L	T
56'	36'	87.29'	16° 34' 35"	100'	28.93'	14.57'	90'	26.04'	13.11'
60'	36'	87.29'	16° 34' 35"	100'	28.93'	14.57'	88'	25.46'	12.82'
60'	40'	87.75'	16° 31' 20"	100'	28.84'	14.52'	90'	25.95'	13.07'

CURVE 2				CURB		PROP. LINE	
W	P	D	△	R	L	R	L
40	28'	83.24'	210° 47' 00"	32'	117.72'	38'	139.80'
50	36'	87.29'	213° 09' 10"	38'	141.37'	45'	167.41'
56'	36'	87.29'	213° 09' 10"	38'	141.37'	48'	178.57'
60'	36'	87.29'	213° 09' 10"	38'	141.37'	50'	186.01'
60'	40'	87.75'	213° 02' 40"	40'	148.73'	50'	185.92'

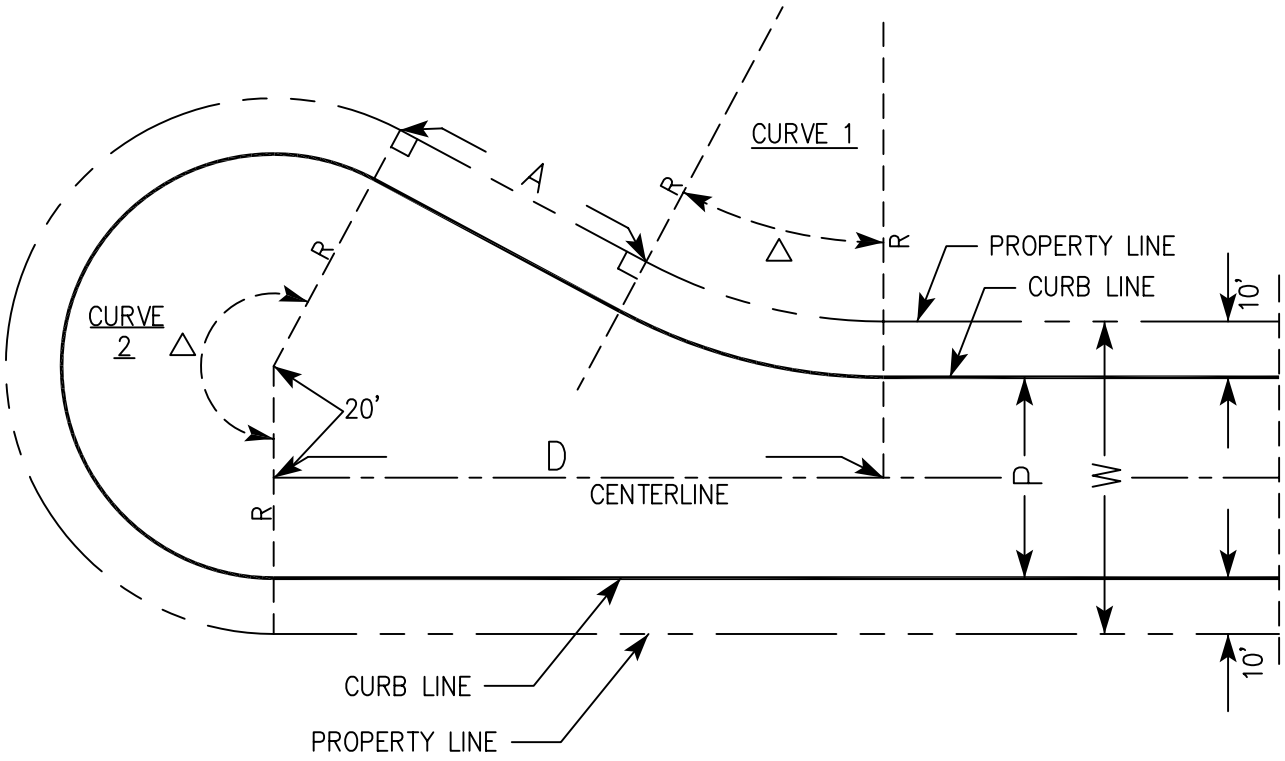
REV.	APPROVED	DATE

CITY OF CARLSBAD

CONCENTRIC CUL-DE-SAC

Glenn Pruim 6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-3



PLAN

CURVE 1			CURB			PROPERTY LINE		
W	P	△	R	L	T	R	L	T
56'	36'	28° 11' 45"	100'	49.21'	25.11'	90'	44.29'	22.60'
60'	36'	28° 11' 45"	100'	49.21'	25.11'	88'	43.31'	22.10'
60'	40'	28° 04' 22"	100'	49.00'	25.00'	90'	44.10'	22.50'

CURVE 2				CURB		PROP. LINE	
W	P	D	△	R	L	R	L
56'	36'	109.27'	208° 11' 45"	38'	138.08'	48'	174.42'
60'	36'	109.27'	208° 11' 45"	38'	138.08'	50'	181.69'
60'	40'	110.00'	208° 04' 22"	40'	145.26'	50'	181.58'

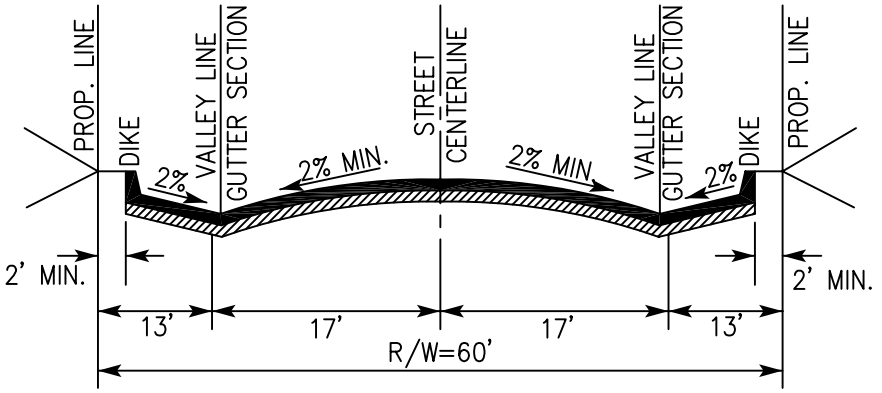
REV.	APPROVED	DATE

CITY OF CARLSBAD

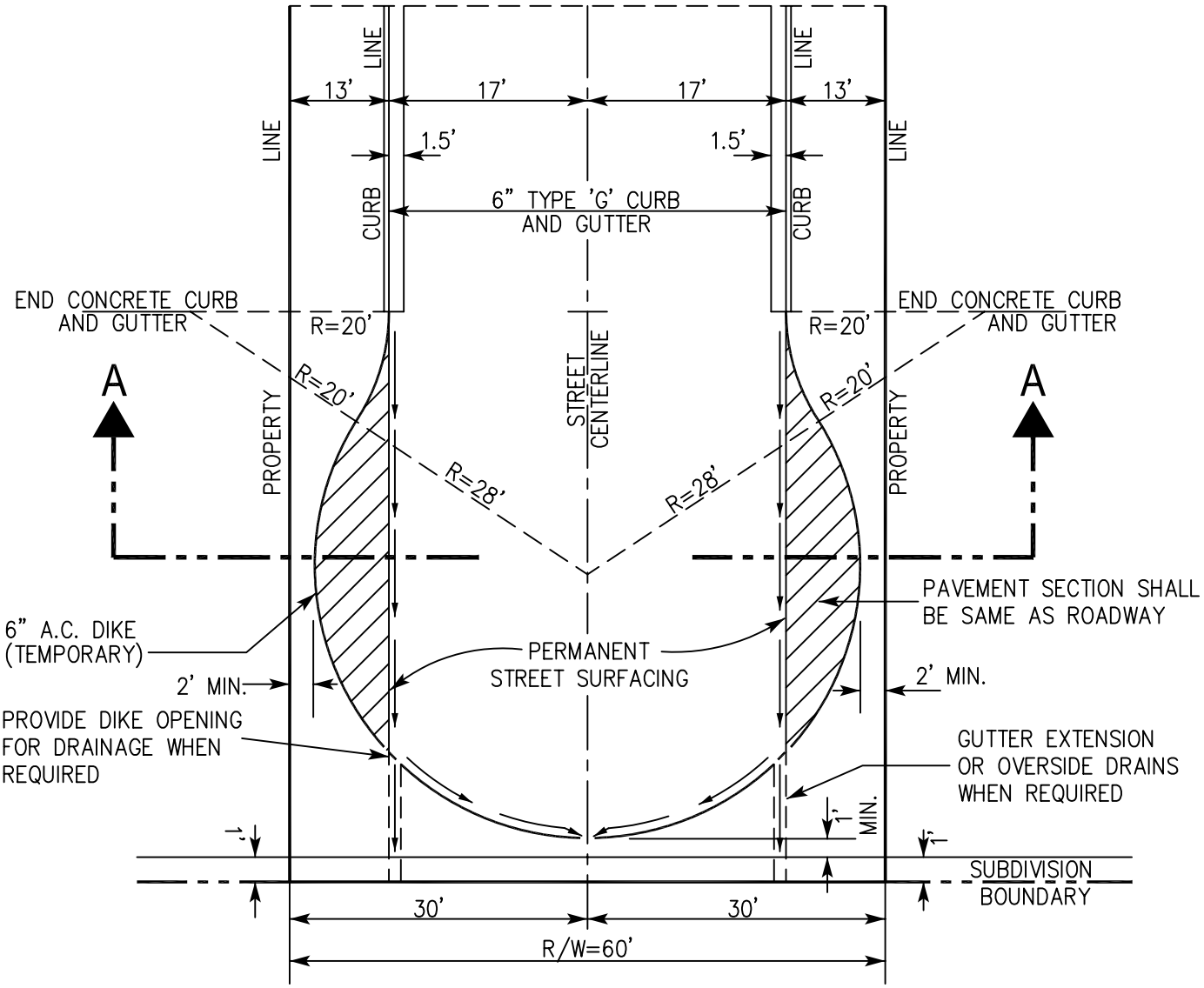
OFFSET CUL-DE-SAC

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-4



SECTION A-A



PLAN

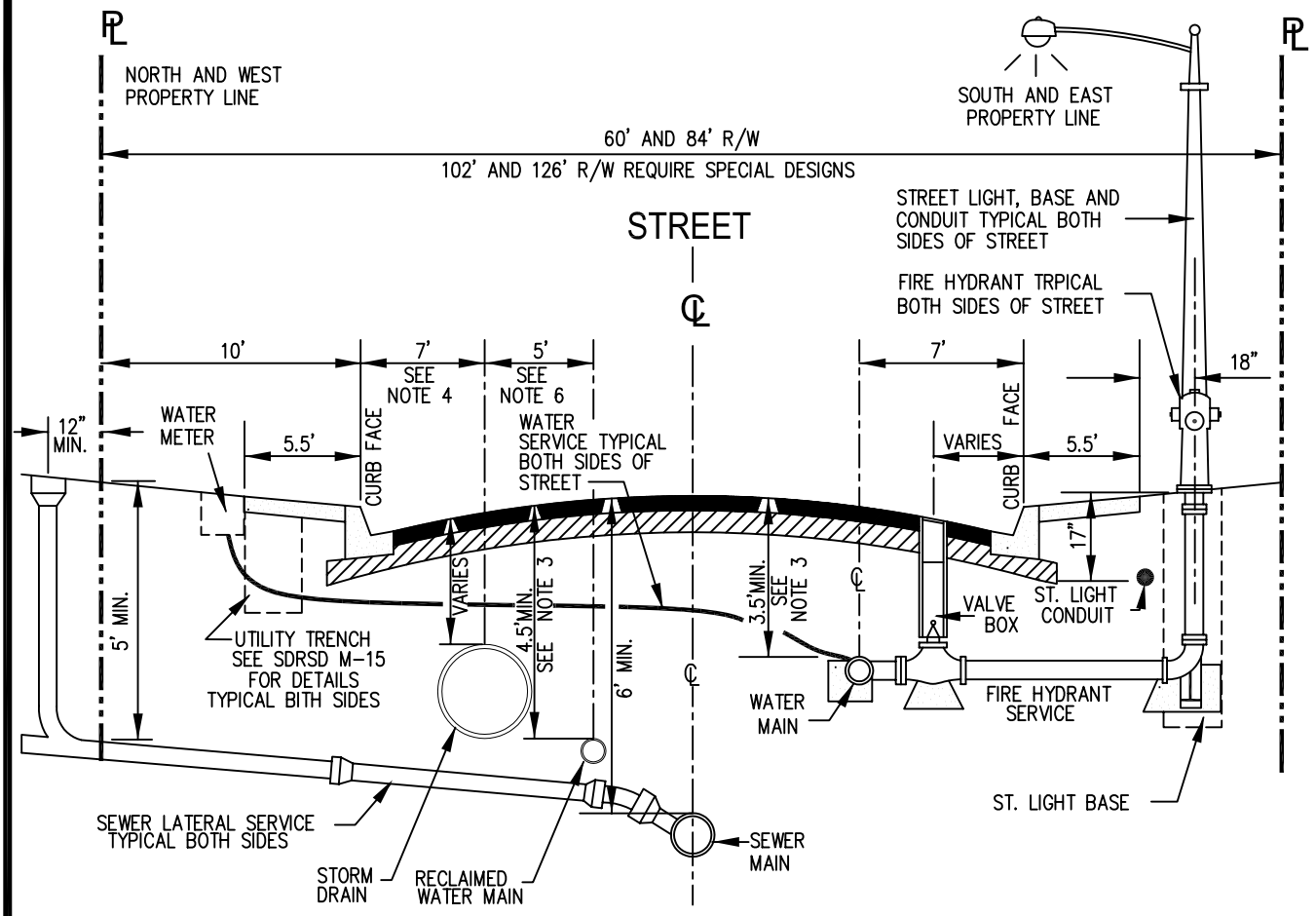
REV.	APPROVED	DATE

CITY OF CARLSBAD

TEMPORARY TURN-AROUND AT DEAD-END STREET

Glenn Pruim — 6-04
CITY ENGINEER — DATE

SUPPLEMENTAL STANDARD NO. GS-5



TYPICAL SECTION

NOTES

1). LOCATION OF WATER MAIN WILL GOVERN LOCATION OF UTILITIES. NORMALLY THE WATER MAIN WILL BE LOCATED ON SOUTH AND EAST SIDE OF STREET EXCEPT ON SINGLE LOADED STREETS WHERE IT MAY BE PLACED ON THE LOADED SIDE OF THE STREET.

2). STREET LIGHTS AND FIRE HYDRANTS WILL BE LOCATED 18" OFF FACE OF CURB WHEN CONTIGUOUS SIDEWALK EXCEEDS 5 FEET IN WIDTH.

3). WATERLINE DEPTH TO BE 3.5' MIN. WITHIN ALL LOCAL AND COLLECTOR STREET CLASSIFICATIONS AND 4.5' MIN. ON ALL ARTERIAL STREETS. RECLAIMED WATERLINE DEPTH TO BE 4.5' MIN. WITHIN ALL LOCAL AND COLLECTOR STREET CLASSIFICATIONS AND 5.5' MIN. ON ALL ARTERIAL STREETS.

4). REDUCE TO 5' FOR 36' WIDE CURB TO CURB STREETS.

5). WHEN SIDEWALK MEANDERS, WATER METER SHALL BE INSTALLED AT BACK OF CURB.

6). INCREASE TO 10' FOR 84' RIGHT-OF-WAY.

7). HORIZONTAL ALIGNMENT OF UTILITIES SHALL FOLLOW THE STREET CURVATURE UNLESS SPECIFICALLY WAIVED BY THE CITY ENGINEER.

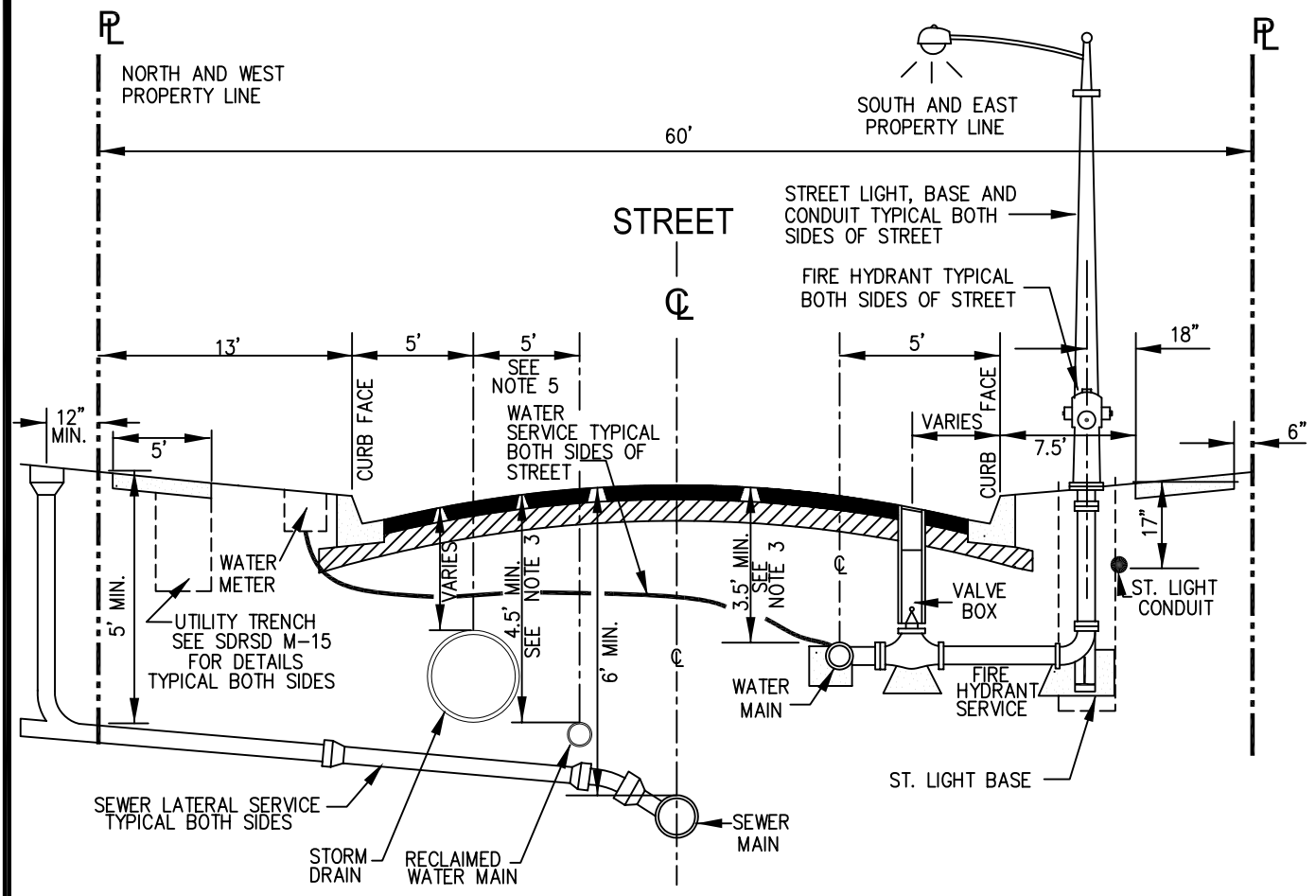
REV.	APPROVED	DATE

CITY OF CARLSBAD

LOCATIONS OF UNDERGROUND UTILITIES

CITY ENGINEER — 6-04 DATE

SUPPLEMENTAL STANDARD NO. GS-6



TYPICAL SECTION
LOCAL STREET

NOTES

1). LOCATION OF WATER MAIN WILL GOVERN LOCATION OF UTILITIES. NORMALLY THE WATER MAIN WILL BE LOCATED ON SOUTH AND EAST SIDE OF STREET EXCEPT ON SINGLE LOADED STREETS WHERE IT MAY BE PLACED ON THE LOADED SIDE OF THE STREET.

2). STREET LIGHTS AND FIRE HYDRANTS WILL BE LOCATED 18" OFF OF SIDEWALK.

3). WATERLINE DEPTH TO BE 3.5' MIN. WITHIN ALL LOCAL AND COLLECTOR STREET CLASSIFICATIONS AND 4.5' MIN. ON ALL ARTERIAL STREETS. RECLAIMED WATERLINE DEPTH TO BE 4.5' MIN. WITHIN ALL LOCAL AND COLLECTOR STREET CLASSIFICATIONS AND 5.5' MIN. ON ALL ARTERIAL STREETS.

4). WHEN SIDEWALK MEANDERS, WATER METER SHALL BE INSTALLED AT BACK OF CURB.

5). HORIZONTAL ALIGNMENT OF UTILITIES SHALL FOLLOW THE STREET CURVATURE UNLESS SPECIFICALLY WAIVED BY THE CITY ENGINEER.

REV.	APPROVED	DATE

CITY OF CARLSBAD

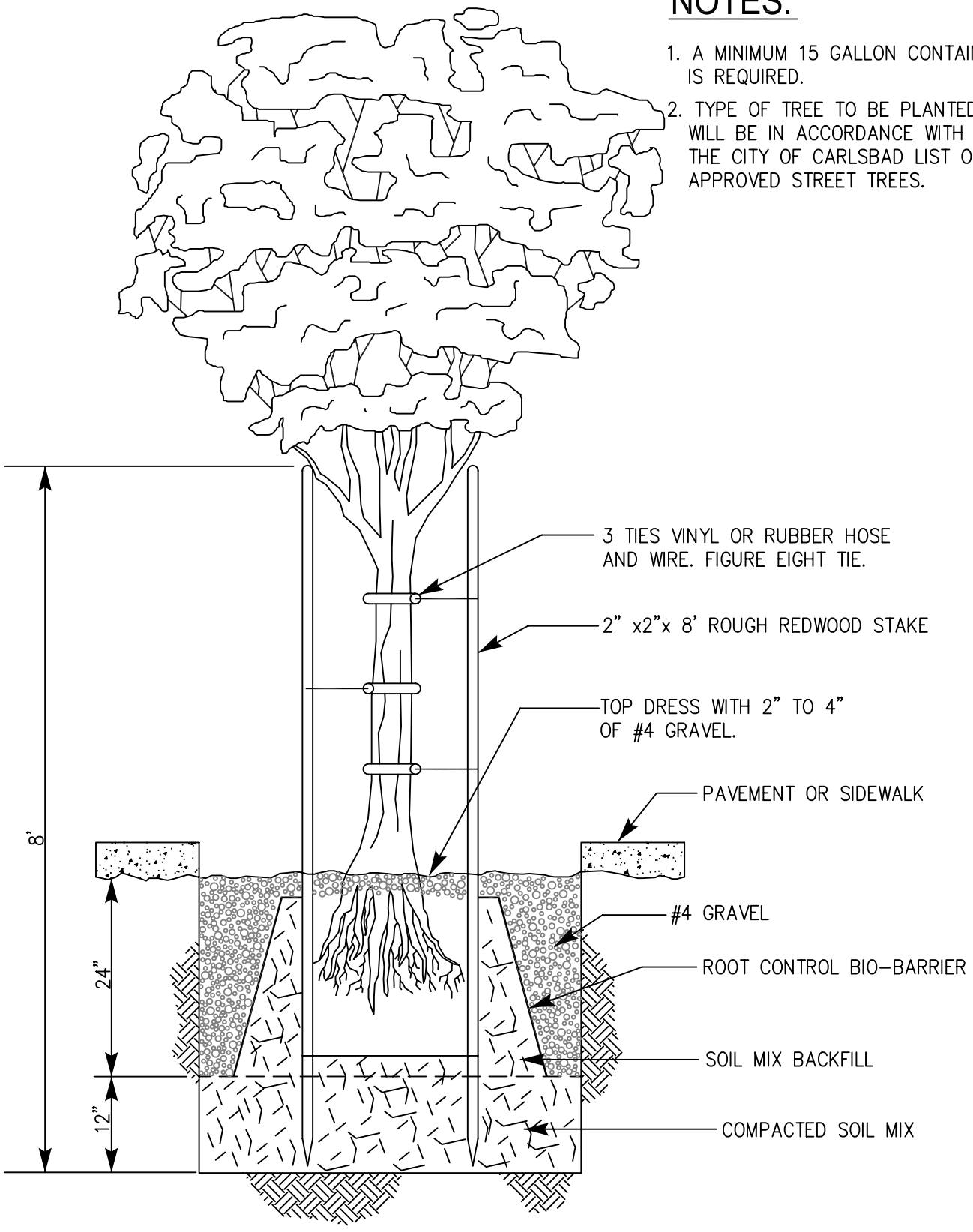
LOCATIONS OF UNDERGROUND UTILITIES

CITY ENGINEER — 6-04 DATE

SUPPLEMENTAL STANDARD NO. GS-6A

NOTES:

1. A MINIMUM 15 GALLON CONTAINER IS REQUIRED.
2. TYPE OF TREE TO BE PLANTED WILL BE IN ACCORDANCE WITH THE CITY OF CARLSBAD LIST OF APPROVED STREET TREES.



REV.	APPROVED	DATE

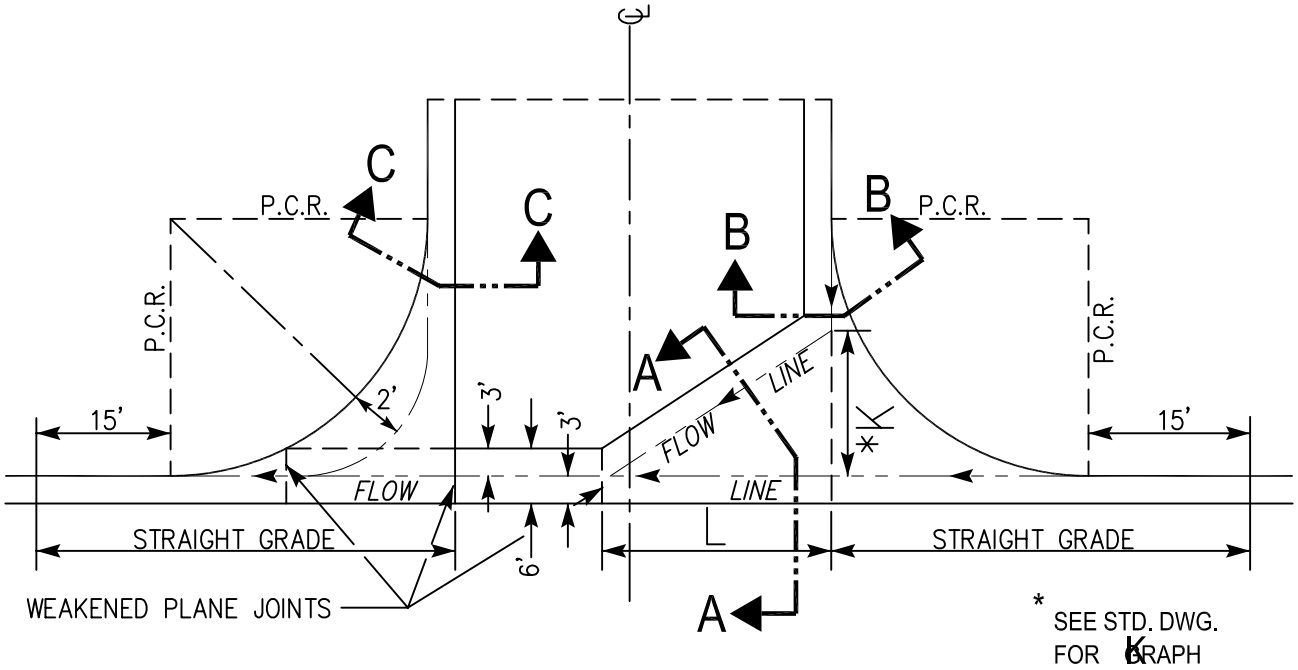
CITY OF CARLSBAD

PARKWAY TREE PLANTING

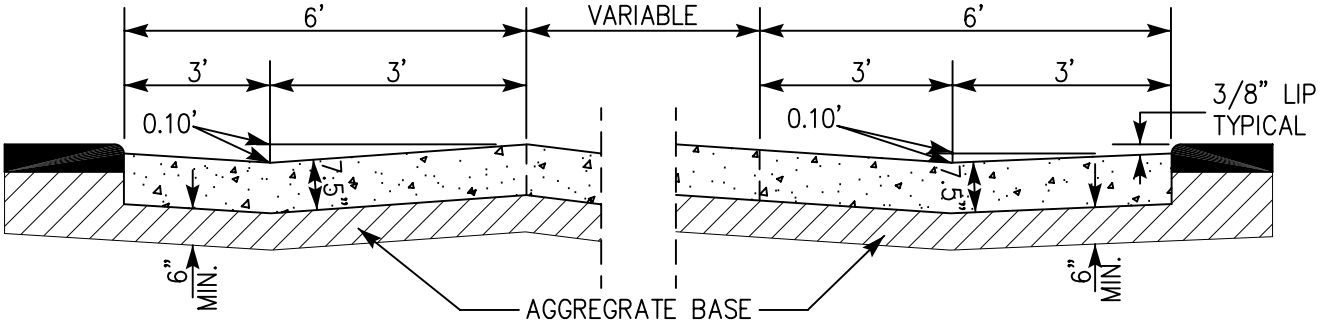
6-04

CITY ENGINEER — DATE

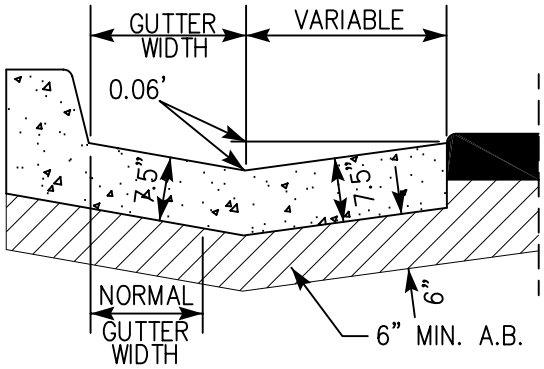
SUPPLEMENTAL STANDARD NO. GS-8



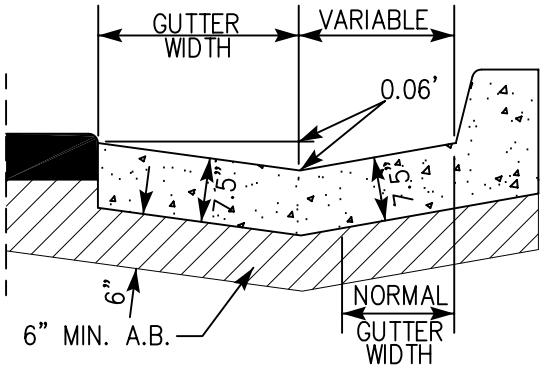
DETAIL PLAN OF CROSS GUTTER



SECTION A-A



SECTION C-C



SECTION B-B

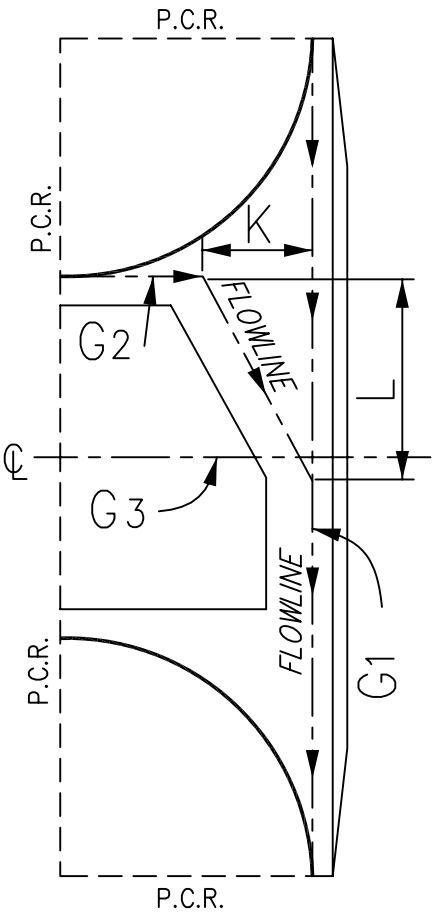
REV.	APPROVED	DATE

CITY OF CARLSBAD

SPECIAL CROSS GUTTER
(STEEP GRADES)

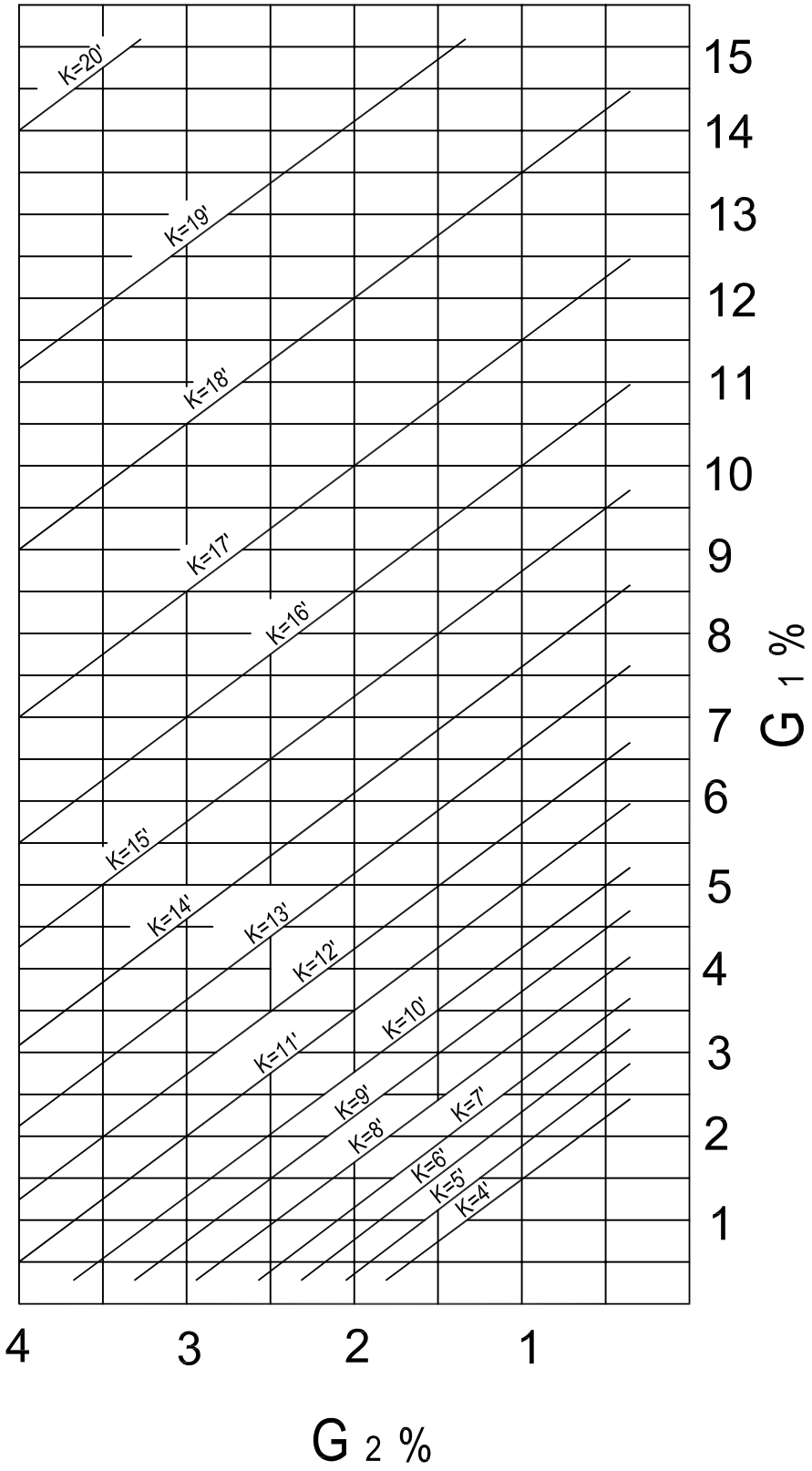
6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-9



$$L = \frac{KG_1}{G_3}$$

PLAN



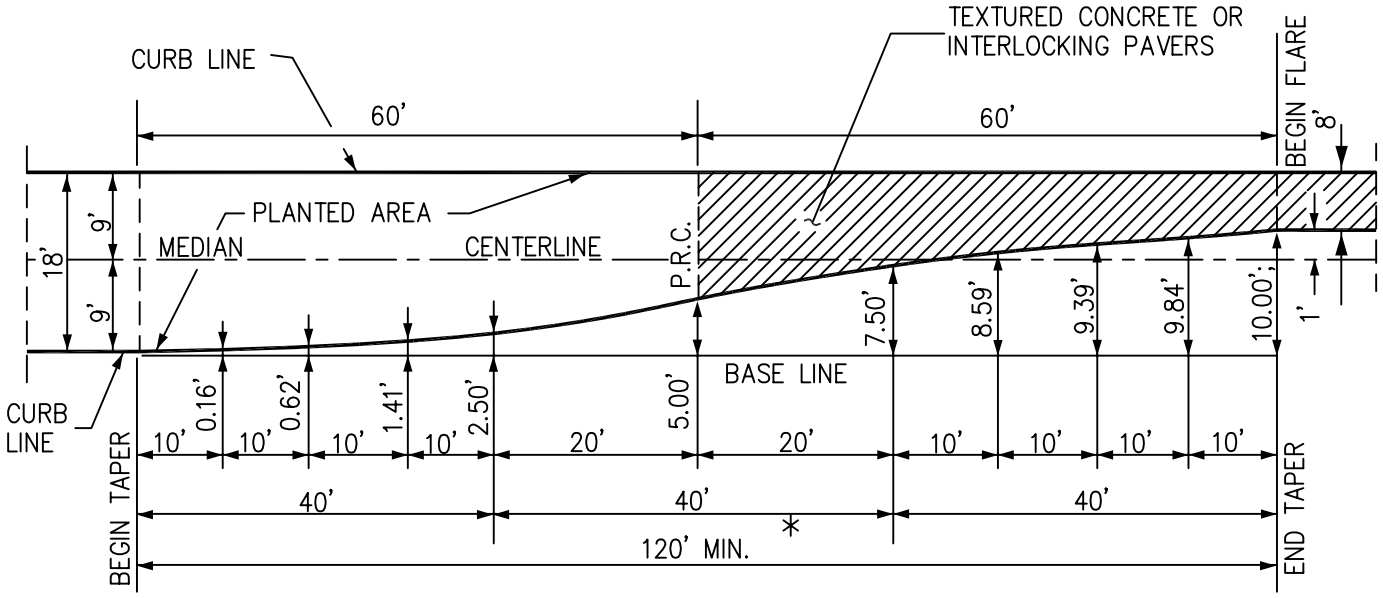
REV.	APPROVED	DATE

CITY OF CARLSBAD

GRAPH FOR SPECIAL CROSS GUTTER

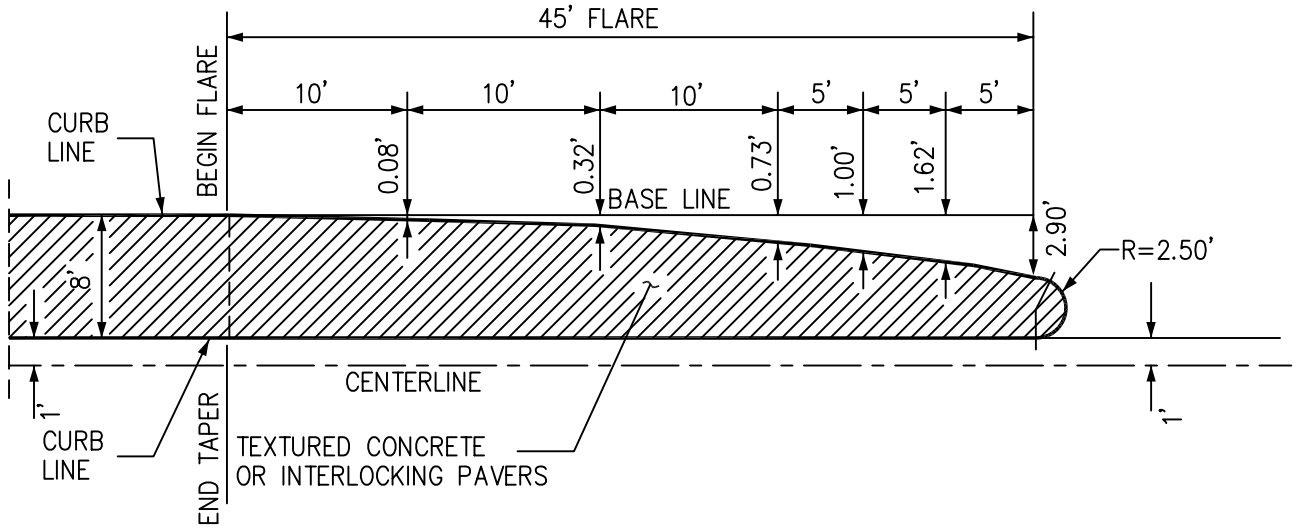
6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-10



* NOTE:
FOR STREETS REQUIRING LONGER TAPERS THE DIMENSIONS MAY BE EXTENDED IN A PROPORTIONATE MANNER.

DETAIL 120' TAPER



DETAIL NOSE FLARE

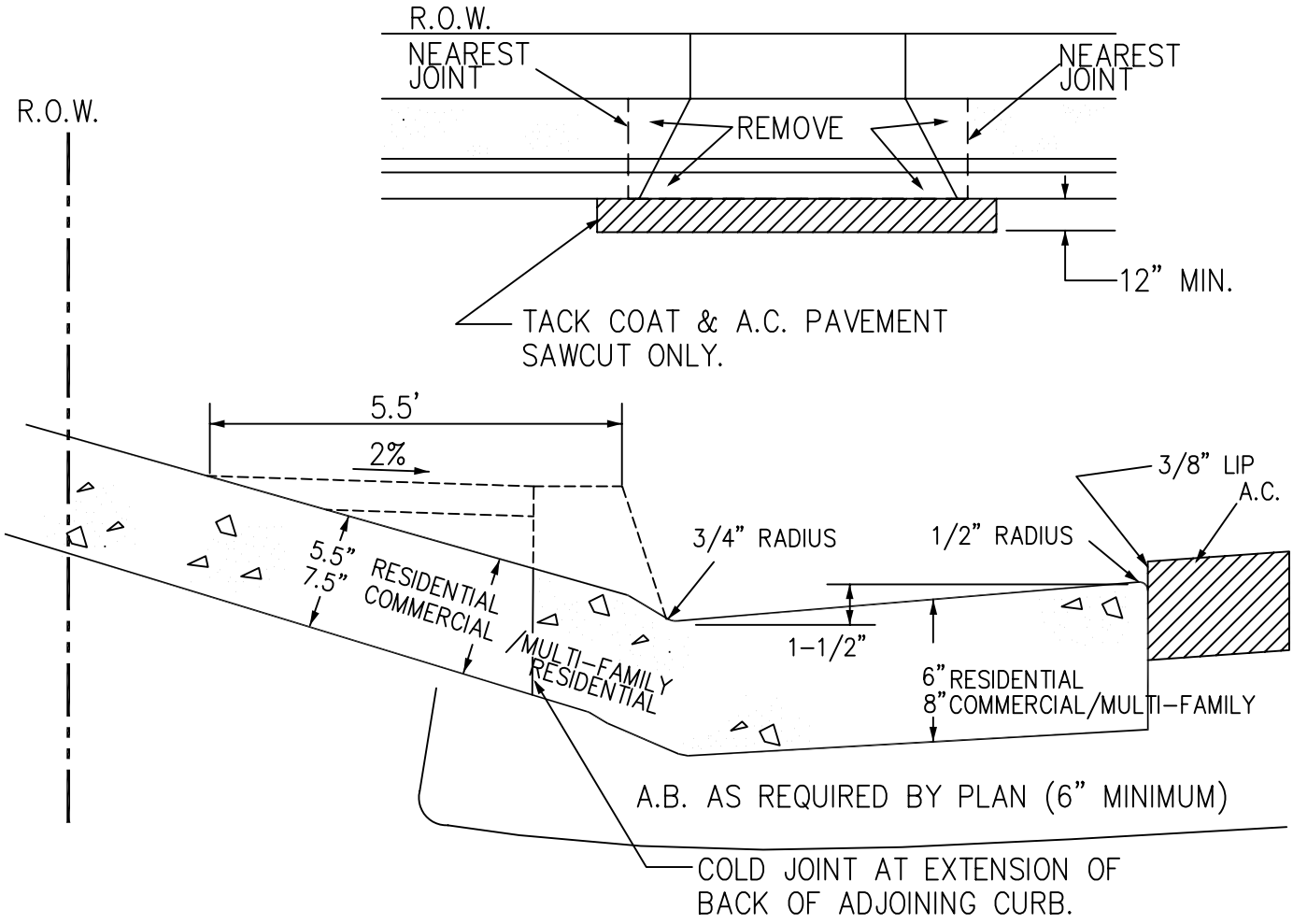
REV.	APPROVED	DATE

CITY OF CARLSBAD

MEDIAN TAPER AND NOSE FLARE

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-11



NOTES:

1. PROVIDE WEAKENED PLANE AT 15' MAXIMUM, OR AT TOP OF TRANSITION.
2. REMOVE CURB, GUTTER & SIDEWALK AS SHOWN ABOVE TO NEAREST EXISTING JOINTS. FORM ON A.C. SIDE AND SLOT PAVE WITH D $-_2$AR4000 A.C.

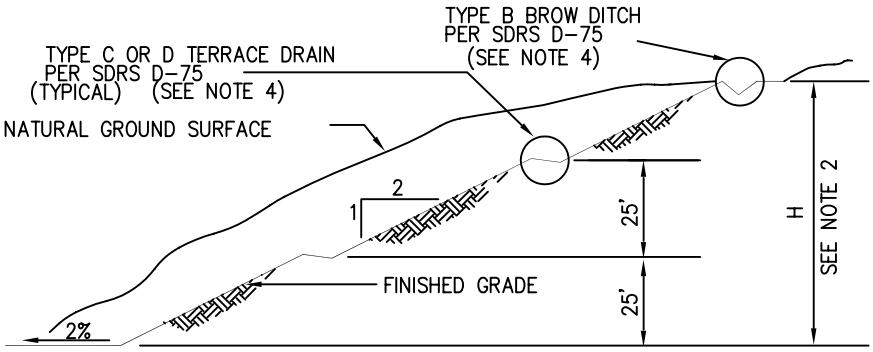
REV.	APPROVED	DATE

CITY OF CARLSBAD

TYPICAL DRIVEWAY ADDITIONS

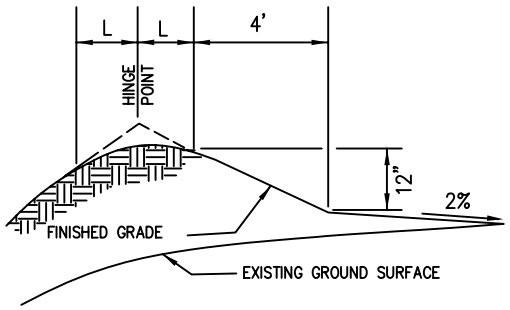
Glenn Pruim 6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-12



TYPICAL CUT SLOPE

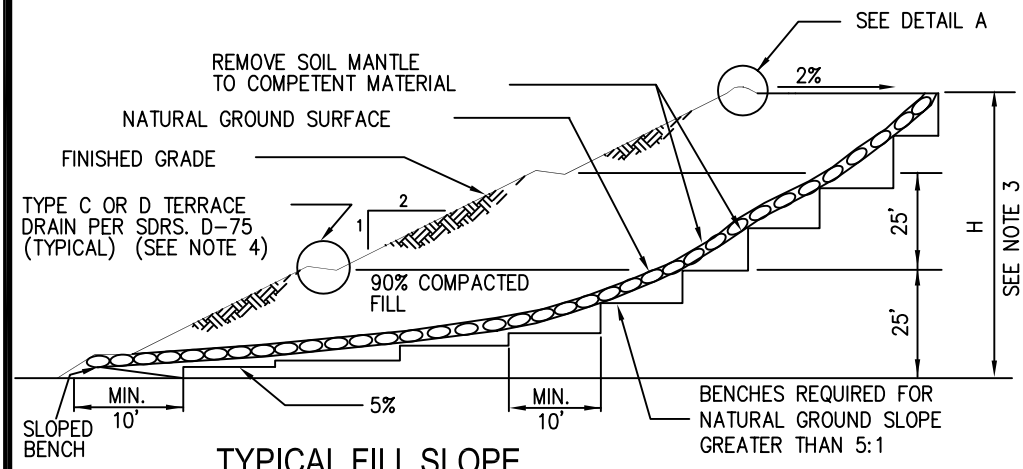
SEE TABLE BELOW FOR L VALUES



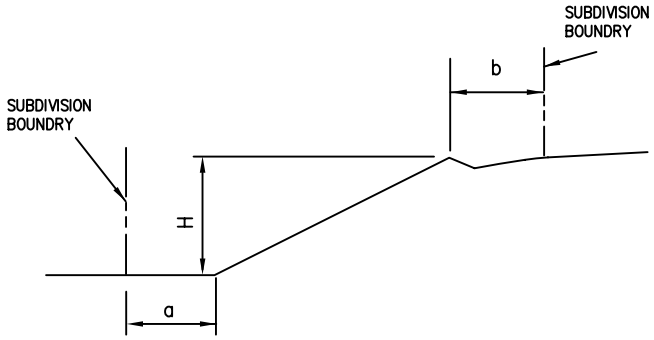
H IN FEET	L IN FEET
0'-5'	—
5'-20'	2.5'
20'-40'	5'
OVER 40'	10'

SLOPE ROUNDING DETAIL
(DOES NOT APPLY TO SIDE SLOPES BETWEEN RESIDENTIAL UNITS)

DETAIL A



TYPICAL FILL SLOPE



H in feet	a	b
less than 10'	2'	3.5'
10' - 20'	(H/5)'	4'
over 20'	4+H/10' (10' MAX)	H/5'(10'max.)

SETBACKS

NOTES

1). ALL FILL MUST BE COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DENSITY WITH THE EXCEPTION OF THE OUTER 8" OF THE SLOPE SURFACE WHICH MAY BE GRID ROLLED TO 85% DENSITY.

2). CUT SLOPES TO 40' REQUIRE NO BENCH. CUT SLOPES OVER 100' REQUIRE ONE MIN. 20' BENCH MIDWAY ON SLOPE.

3). FILL SLOPES TO 30' REQUIRE NO BENCH. FILL SLOPES OVER 100' REQUIRE ONE MIN. 20' BENCH MIDWAY ON SLOPE.

4). AS MODIFIED BY CITY OF CARLSBAD ENGINEERING STANDARDS.

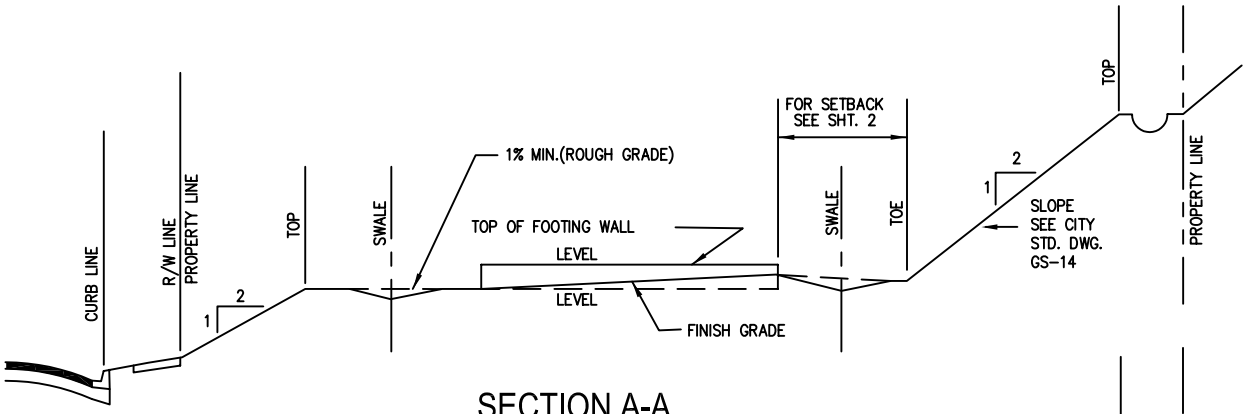
REV.	APPROVED	DATE

CITY OF CARLSBAD

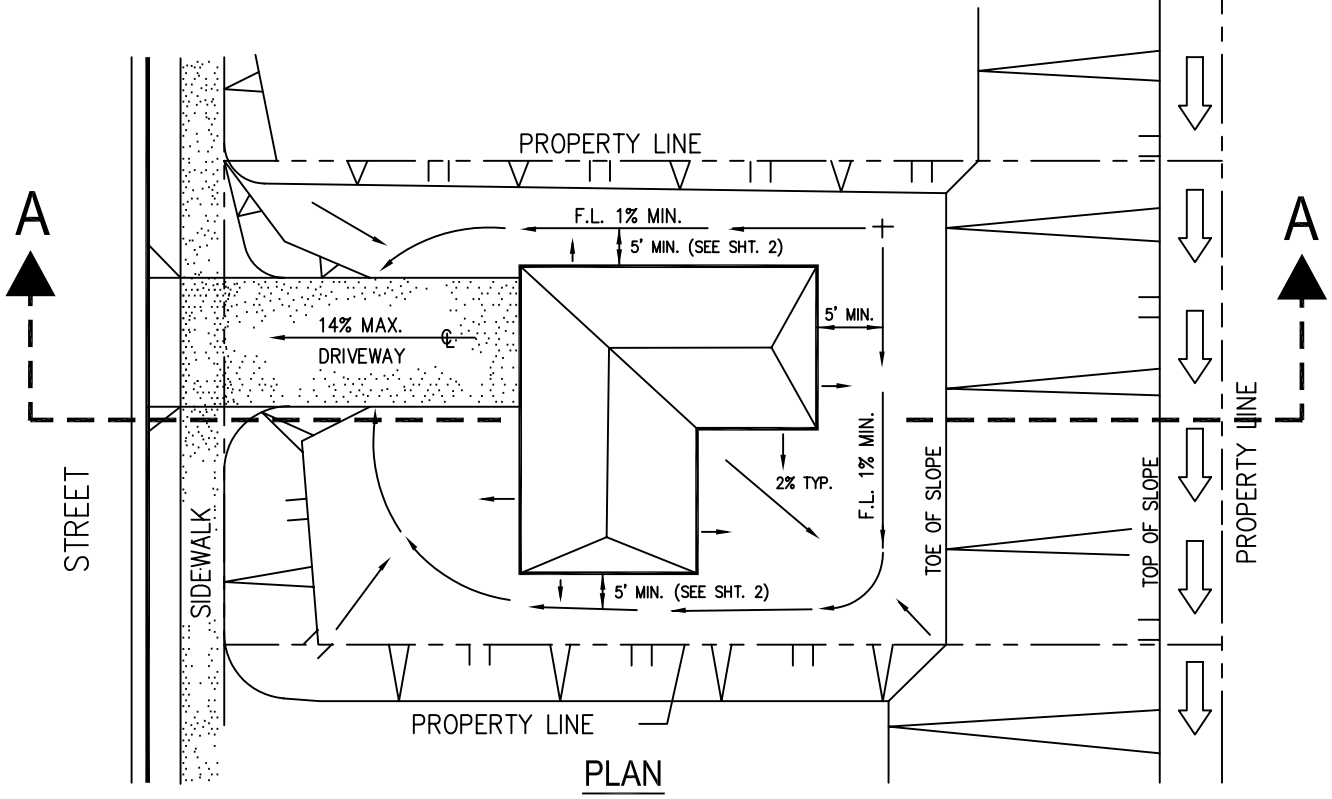
GRADING OF SLOPES AND REQUIRED SETBACKS

Glenn Pruim 6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-14



SECTION A-A



PLAN

NOTES

1). DRAINAGE SHALL BE CONDUCTED TO STREET AS SURFACE FLOW WHENEVER POSSIBLE.

2). NON-EROSIVE DRAINAGE SURFACE REQUIRED WHERE FLOW IS COLLECTED.

3). FINISH GRADING SHALL PROVIDE A MINIMUM POSITIVE DRAINAGE OF 2% TO SWALE 5' AWAY FROM THE BUILDING UNLESS SPECIFICALLY APPROVED OTHERWISE BY THE CITY ENGINEER.(SEE SHEET 2)

4). DRIVEWAYS BETWEEN 14% AND 20% MUST RECEIVE SPECIAL APPROVAL OF THE CITY ENGINEER. SUBMIT ENGINEERED PROFILE AND LETTER OF REQUEST TO THE ENGINEERING DEPARTMENT.

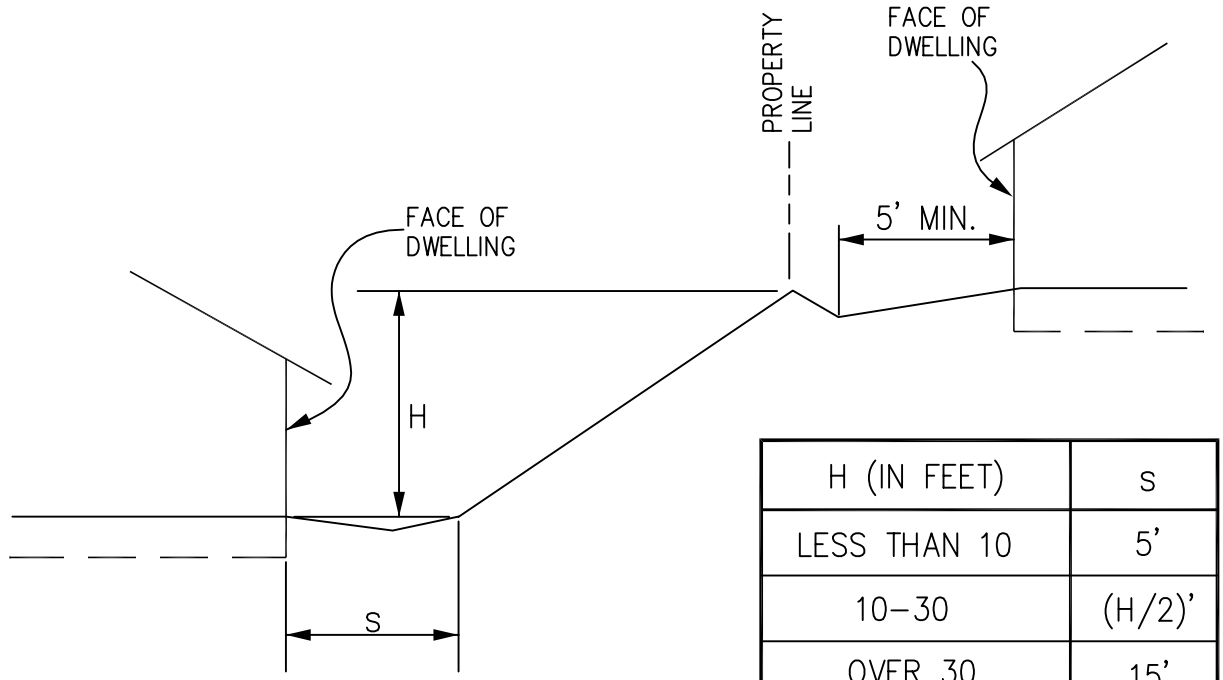
REV.	APPROVED	DATE

CITY OF CARLSBAD

TYPICAL FINISHED LOT GRADING

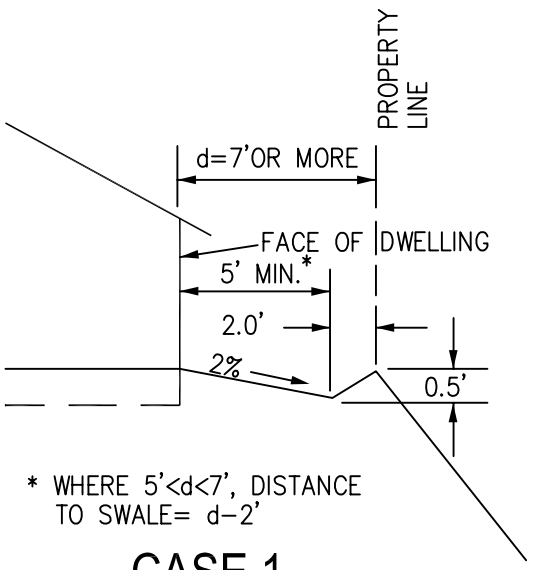
CITY ENGINEER — DATE 6-04

SUPPLEMENTAL STANDARD NO. GS-15



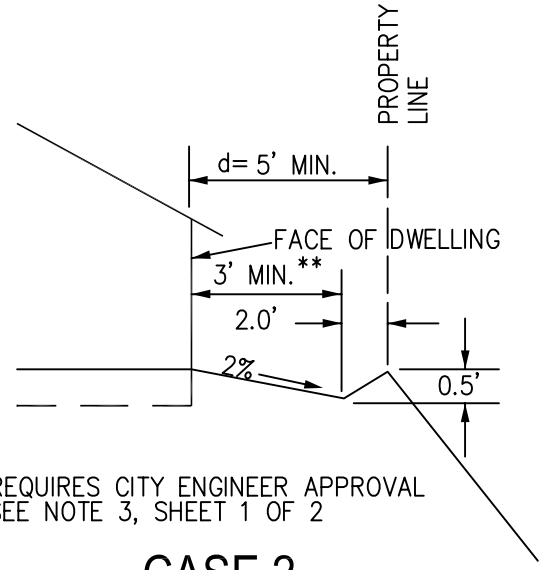
H (IN FEET)	S
LESS THAN 10	5'
10–30	(H/2)'
OVER 30	15'

DWELLING SETBACK FROM SLOPE



* WHERE 5'<d<7', DISTANCE TO SWALE= d–2'

CASE 1



** REQUIRES CITY ENGINEER APPROVAL SEE NOTE 3, SHEET 1 OF 2

CASE 2

DRAINAGE SWALE DETAIL

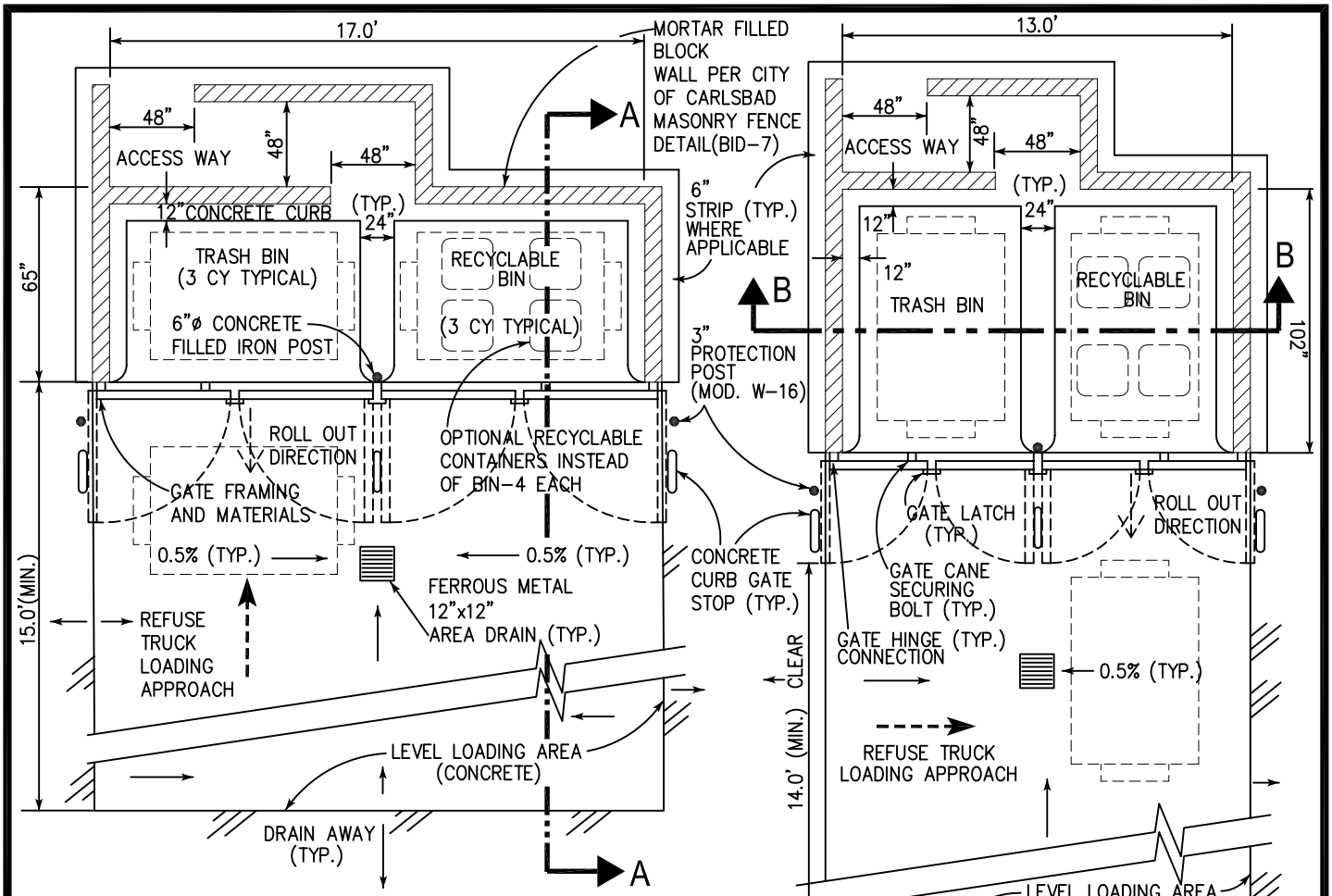
REV.	APPROVED	DATE

CITY OF CARLSBAD

TYPICAL FINISHED LOT GRADING

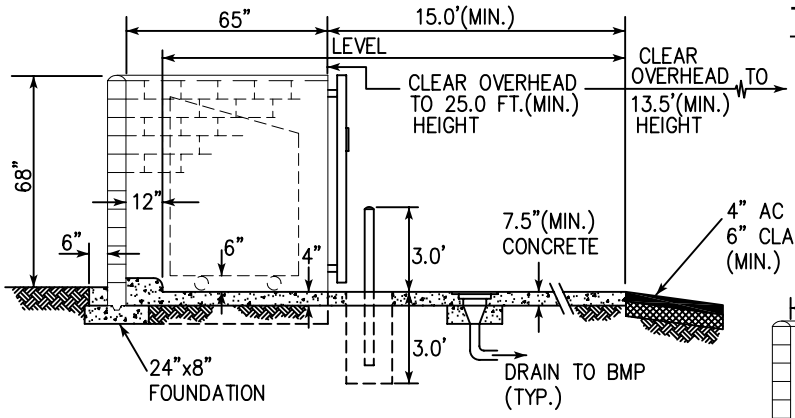
6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-15

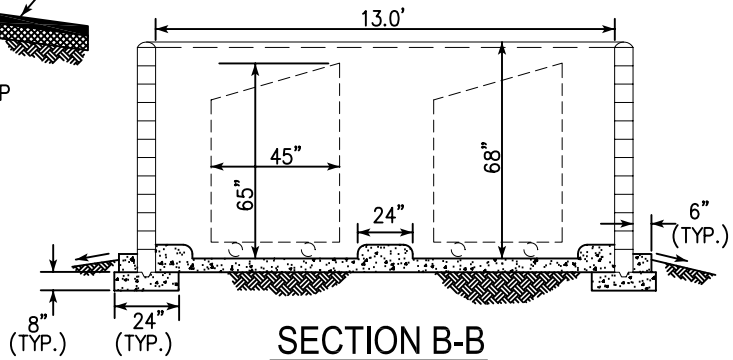


TYPE A - DRIVE AND LOAD FRONT APPROACH

TYPE B - DRIVE AND LOAD SIDE APPROACH



SECTION A-A



SECTION B-B

REV.	APPROVED	DATE

CITY OF CARLSBAD

REFUSE BIN ENCLOSURE
FOR 3 CUBIC YARDS BINS

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-16

NOTES:

1. LOCATION OF REFUSE BIN ENCLOSURES SHALL BE APPROVED BY THE PLANNING DIRECTOR AND THE CITY ENGINEER. ENCLOSURE SHALL BE OF SIMILAR COLORS AND/OR MATERIALS AS THE PROJECT TO THE SATISFACTION OF THE PLANNING DIRECTOR.
2. THE ENCLOSURE SLAB AND LOADING AREA SHALL BE LEVEL IN ORDER TO FACILITATE THE ROLLING OF BINS FOR LOADING POSITIONING.
3. GATES SHALL BE MOUNTED SO THAT THEY SWING FULLY OPEN WITH NO PROTRUSION INTO THE PATH OF THE BIN. THE GATES SHALL HAVE CHAINS, HOOKS OR PIN STOPS AT THEIR FULL OPEN POSITION TO HOLD THEM OPEN.
4. ALL GATE CONNECTION LATCHES, SECURING BOLTS, FRAMING, AND HINGES SHALL BE HEAVY DUTY TYPE AND PAINTED OR TREATED AGAINST CORROSION.
5. GATE MATERIALS TO BE APPROVED BY PLANNING DIRECTOR.
6. POSITIVE DRAINAGE AWAY FROM THE ENCLOSURE AND LOADING AREAS SHALL BE PROVIDED AND MAINTAINED.
7. ALTERNATIVE CONFIGURATION AND LOCATION OF THE ACCESS WAY MAY BE ACCEPTABLE ON A CASE BY CASE BASIS PROVIDED NO PORTION OF THE TRASH BINS ARE DIRECTLY VISIBLE TO THE PUBLIC.
8. LOADING AND ENCLOSURE AREA DRAINAGE SHALL BE INDEPENDENT AND DRAINED TOWARDS AN APPROVED SITE BMP.
9. DEVELOPMENT PROJECTS SHALL INCORPORATE THE REQUIREMENTS OF THE "MODEL ORDINANCE OF THE CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD RELATING TO AREAS FOR COLLECTING AND LOADING RECYCLABLE MATERIALS".
10. AREAS FOR RECYCLING SHALL BE ADEQUATE IN CAPACITY, NUMBER AND DISTRIBUTION TO SERVE THE DEVELOPMENT WHERE THE PROJECT OCCURS.
11. RECYCLING AREAS SHALL BE SECURED TO PREVENT THE THEFT OF RECYCLABLE MATERIALS BY UNAUTHORIZED PERSONS WHILE ALLOWING AUTHORIZED PERSONS ACCESS FOR DISPOSAL OF MATERIALS.
12. RECYCLING AREAS OR THE BINS AND CONTAINERS PLACED THEREIN MUST PROVIDE PROTECTION AGAINST SEVERE ENVIRONMENTAL CONDITIONS WHICH MIGHT RENDER THE COLLECTED MATERIALS UNMARKETABLE.
13. A SIGN CLEARLY IDENTIFYING ALL RECYCLING AND SOLID WASTE COLLECTION AND LOADING AREAS AND THE MATERIALS ACCEPTED THEREIN SHALL BE POSTED ADJACENT TO ALL POINTS OF ACCESS TO THE RECYCLING AREAS.
14. EACH RECYCLING AREA WITHIN A MULTI-FAMILY RESIDENTIAL DEVELOPMENT SHALL BE NO GREATER THAN 250 FEET FROM EACH LIVING UNIT.

REV.	APPROVED	DATE

CITY OF CARLSBAD

REFUSE BIN ENCLOSURE
FOR 3 CUBIC YARDS BINS

Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-16

MINIMUM STRUCTURAL SECTION IN INCHES TI= 1.35 (EWL)

T.I.	4.5		5.0		6.0		7.0		8.0		8.5		9.0	
TYPE	CUL-DE-SAC		LOCAL STREET		COLLECTOR		LIGHT INDUSTRIAL		SECONDARY ARTERIAL		MAJOR ARTERIAL		PRIME ARTERIAL	
SUBGRADE R-VALUE	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB	AC	AB
8			4	7	4	13	4	15						
10	4	5							4	18	5	18	6	18
12			4	6	4	12	4	14						
14									4	17	5	17	6	17
16	4	4			4	11	4	13			5	16	6	16
18			4	5					4	16				
20					4	10	4	12	4	15	5	15	6	15
22													6	14
24			4	4	4	9	4	11	4	14	5	14		
26											5	13	6	13
28					4	8	4	10	4	13				
30											5	12	6	12
32					4	7	4	9	4	12			6	11
34									4	11	5	11		
36					4	6	4	8					6	10
38									4	10	5	10	6	9
40							4	7			5	9		
42									4	9			6	8
44							4	6			5	8		
46									4	8			6	7
48											5	7	6	6
50									4	7	5	6		
52														
54									4	6				

1. SOILS HAVING AN R VALUE LESS THAN 12 REQUIRE SPECIAL CONSIDERATION. AN ALTERNATIVE TO INCREASING THE STRUCTURAL SECTION IS TO TEST FOR LIME STABILIZATION. THE CORRESPONDING STRUCTURAL SECTION DETERMINED AND % LIME ESTABLISHED.
2. A.B. = ALL AGGREGRATE BASE MATERIALS SHALL BE CLASS II PER CALTRANS SECTION 26-1.02A OR CMB PER SECTION 200-2.4 SSPWC.
3. THE BOTTOM FIGURES LISTED ARE THE MINIMUM PERMITTED.
4. TOP 12" OF SUB-GRADE TO BE 95% COMPACTION.
5. PAVING SHALL BE DONE IN A MINIMUM OF TWO LIFTS WITH THE SURFACE COURSE DONE JUST PRIOR OCCUPANCY. THE BASE COURSE SHALL BE 2.5" MIN.
6. POTABLE, RECLAIMED WATER AND GAS, VALVE BOXES SHALL BE RAISED TO GRADE OR MADE ACCESSIBLE AT EACH PAVING LIFT AS APPROVED BY THE CITY ENGINEER. IF THE SEWER MAIN IS IN SERVICE, THE ACCESSHOLE SHALL BE RAISED TO AT EACH PAVING LIFT. RAISING APPURTENANCES TO FS BEFORE AC CAP WILL NOT BE ALLOWED. RAISING VALVE BOXES, CLEANOUTS OR ACCESSORIES TO FINISH GRADE BEFORE FINISH AC CAP IS PLACED WILL NOT BE ALLOWED.

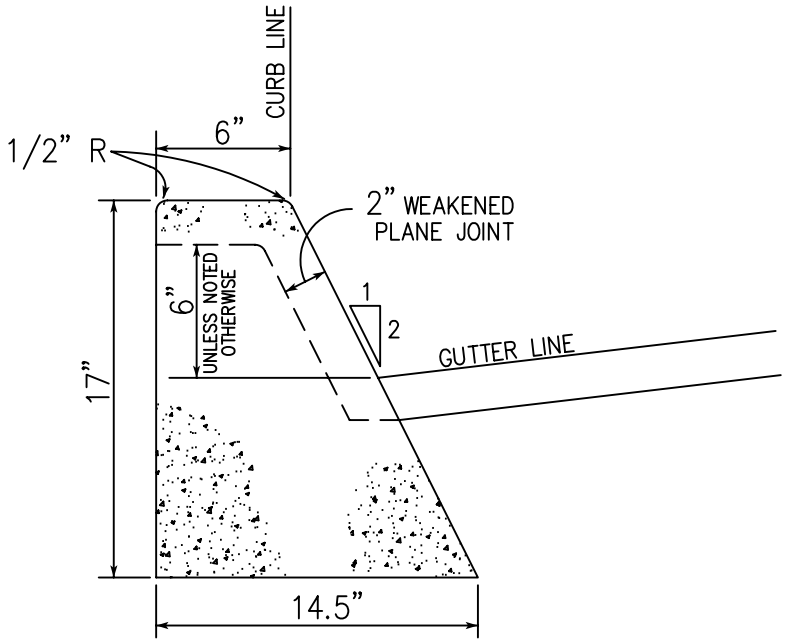
REV.	APPROVED	DATE

CITY OF CARLSBAD

STRUCTURAL SECTION OF STREETS AND ALLEYS

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-17



6" CURB
AREA = 1.21 SQ. FT.

LEGEND ON PLANS

152 MM (6") CURB

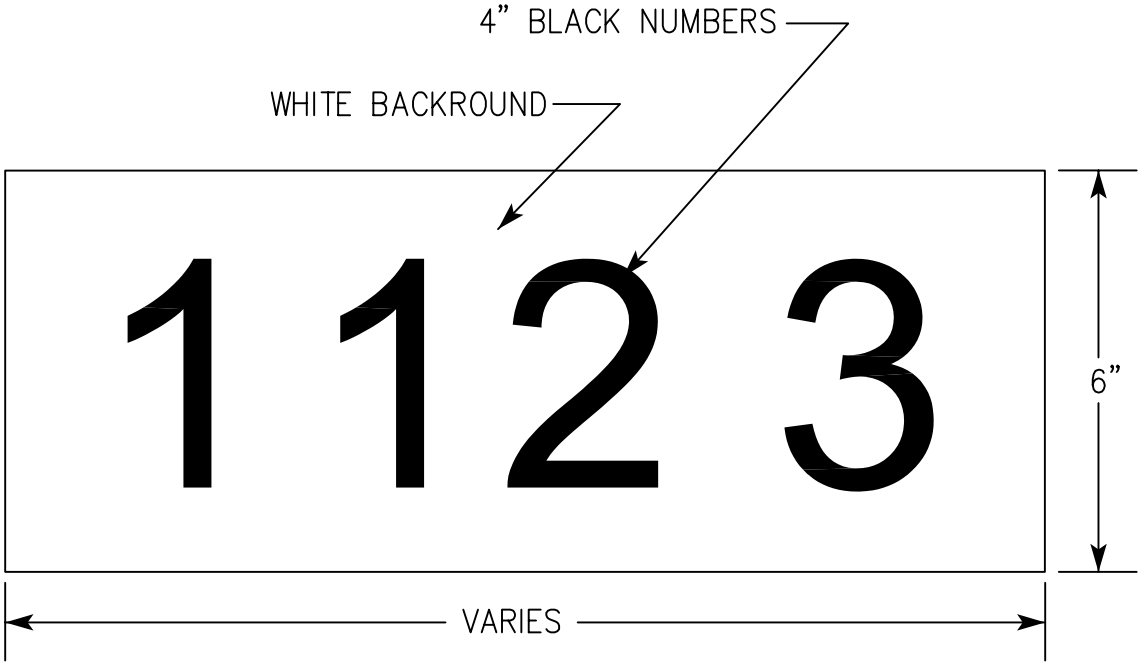
REV.	APPROVED	DATE

CITY OF CARLSBAD

MEDIAN CURB

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-18



1. NUMBERS TO BE CENTERED ON WHITE BACKROUND.
2. NUMBERS TO BE PLACED WITHIN 5 FEET OF DRIVEWAY

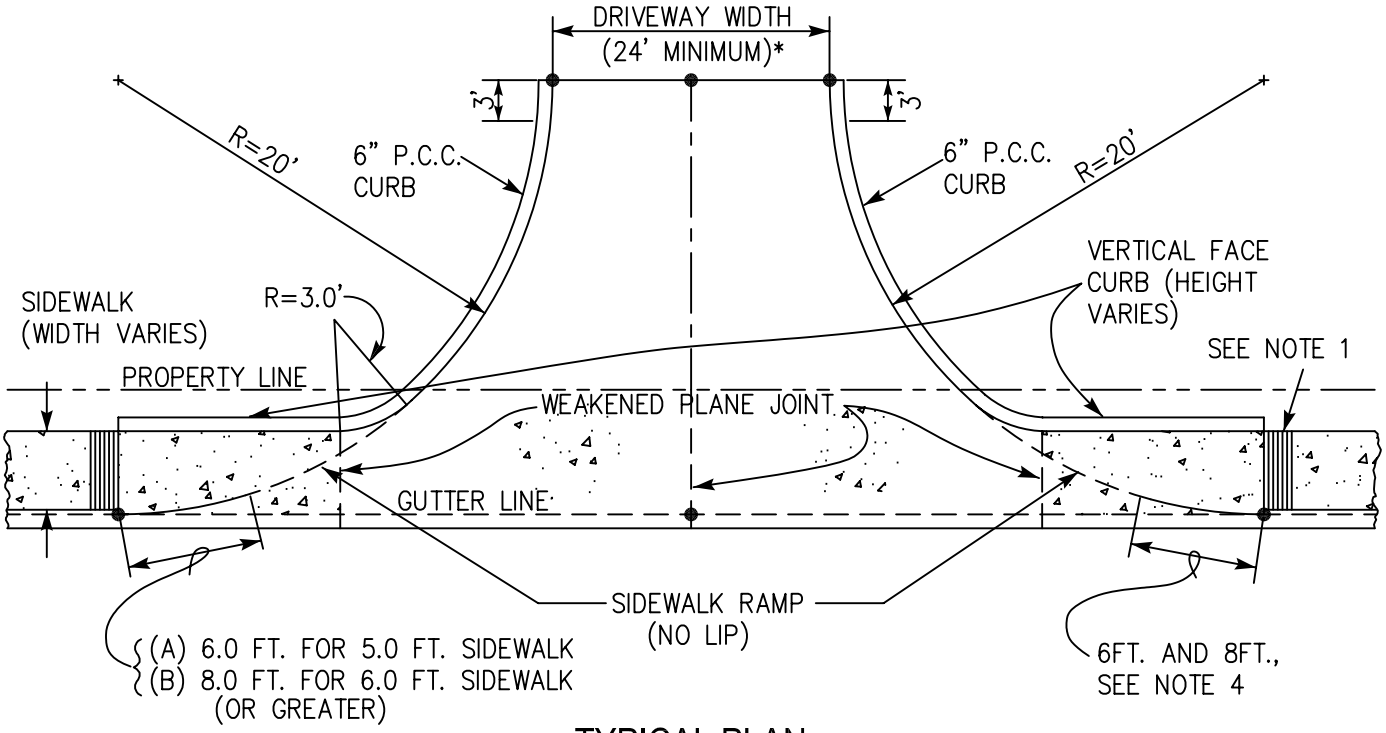
REV.	APPROVED	DATE

CITY OF CARLSBAD

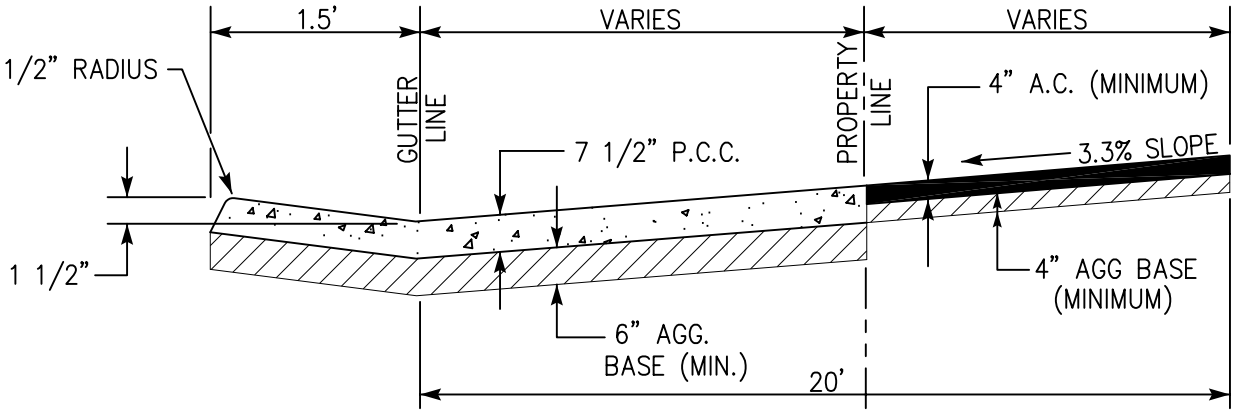
PAINTED CURB ADDRESS

Glenn Pruim 6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-19



TYPICAL PLAN



CENTERLINE X-SECTION

1. THE RAMP SHALL HAVE A 12" WIDE BORDER WITH 1/4" DEEP SCORE LINES AND 1/8" RADIUS. THE SPACING SHALL BE APPROXIMATELY 3/4" O.C.
2. ● = ELEVATION SHOWN ON PLANS (TOP OF CURB, AND GUTTER ELEVATION)
3. ALL CONCRETE SHALL BE 560-C-3250
4. TRANSITION FROM FULL HEIGHT CURB TO NO CURB.

* OR AS REQUIRED BY THE CITY ENGINEER

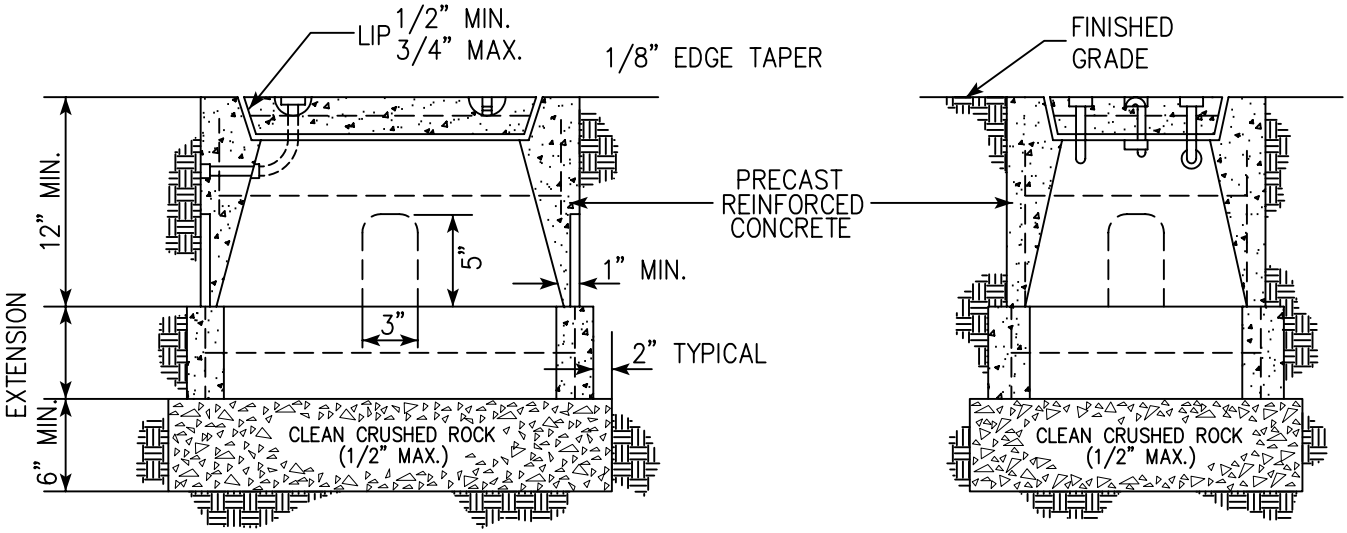
REV.	APPROVED	DATE

CITY OF CARLSBAD

ALLEY TYPE DRIVEWAY

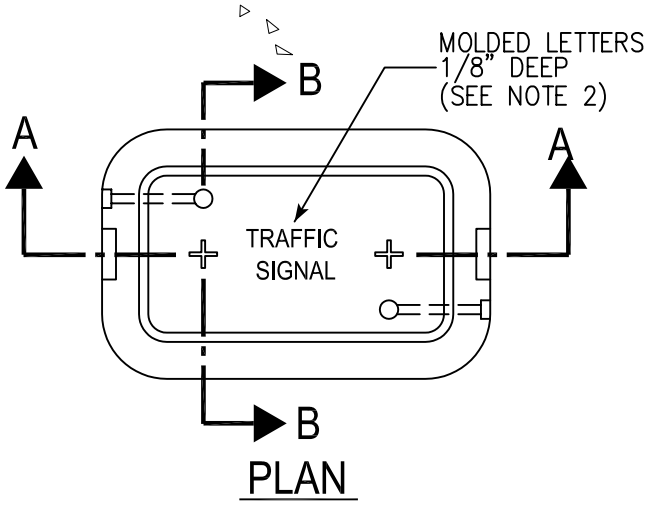
Glenn Pruim 6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-20

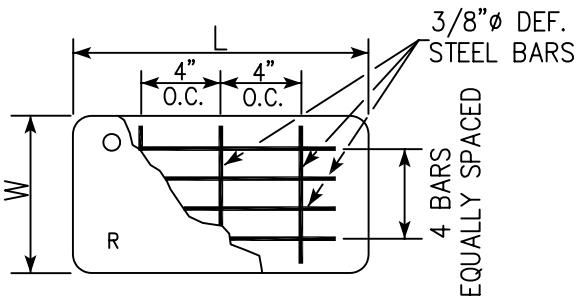


SECTION A-A

SECTION B-B



PLAN



COVER REINFORCING PLAN

TYPE	COVER EDGE THICKNESS	MIN. DEPTH BOX AND EXTENSION	L*	W*	R
31/2	1 3/4"	NO EXTENSION	15 3/8"	10 1/8"	1 1/8"
5	2"	22"	23 1/4"	13 3/4"	1 1/4"

* TOP DIMENSION

NOTES:

1). USE STEEL COVER WHEN SUBJECTED TO TRAFFIC LOADS.

2). PULL BOX COVER SHALL BE MARKED "STREET LIGHTING" WHERE PULL BOX CONTAINS STREET LIGHTING CONDUCTORS ONLY. "HIGH VOLTAGE" SHALL BE ADDED WHERE VOLTAGE IS ABOVE 600 VOLTS.

3). THE L AND W DIMENSIONS OF THE COVER SEAT SHALL BE 1/8" GREATER THAN THE COVER DIMENSIONS.

4). COMPACT EARTH UNDER AND AROUND PULL BOX.

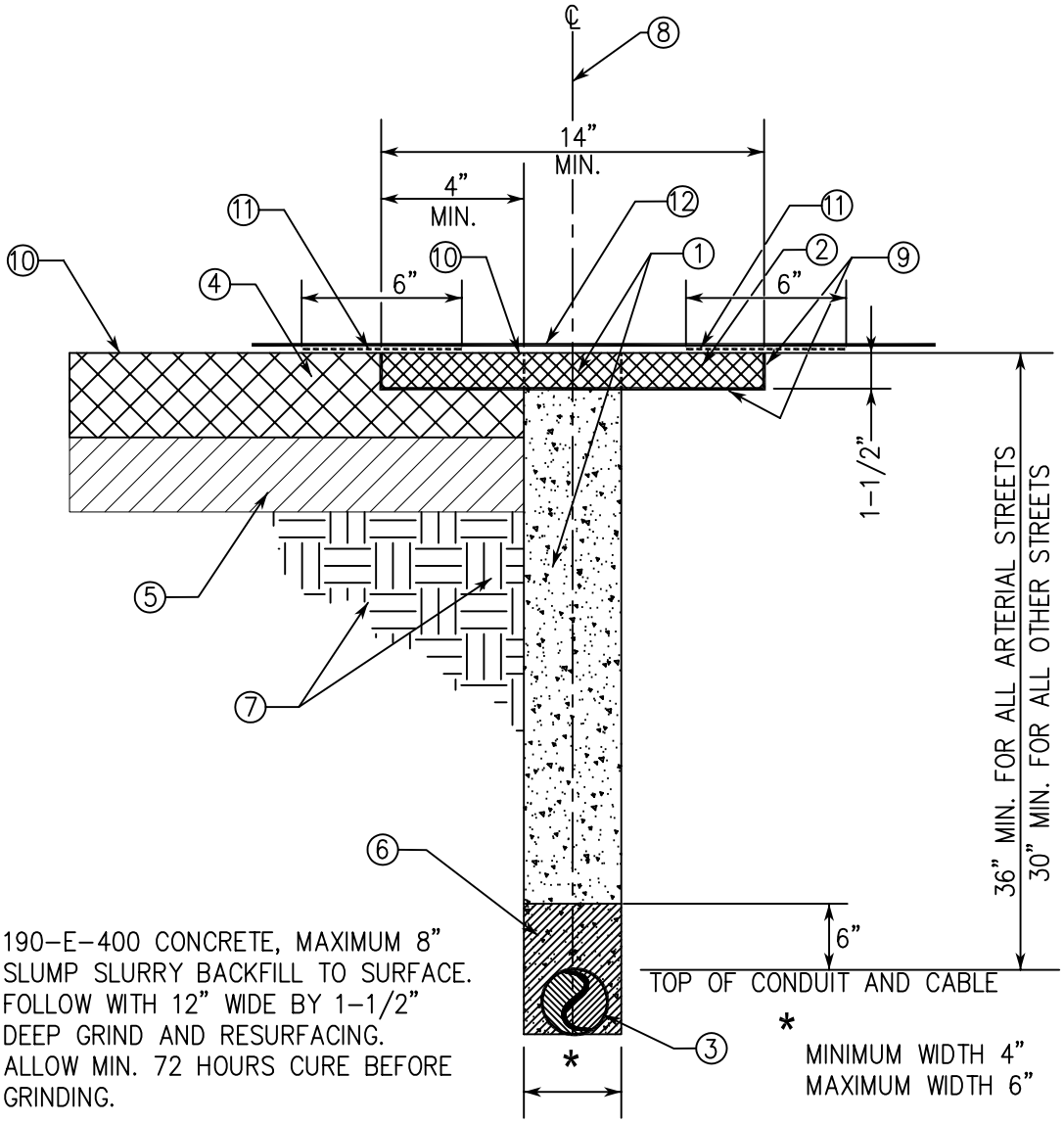
REV.	APPROVED	DATE

CITY OF CARLSBAD

PULL BOX FOR TRAFFIC SIGNAL AND STREET LIGHTING

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-21



SECTION
N.T.S.

① 190-E-400 CONCRETE, MAXIMUM 8" SLUMP SLURRY BACKFILL TO SURFACE. FOLLOW WITH 12" WIDE BY 1-1/2" DEEP GRIND AND RESURFACING. ALLOW MIN. 72 HOURS CURE BEFORE GRINDING.

② D2-AR-4000 ASPHALT CONCRETE

③ ALL CONDUIT AND CABLE

④ EXISTING A.C. PAVEMENT

⑤ EXISTING BASE MATERIAL

⑥ MORTAR SAND COMPACTED TO 95% RELATIVE DENSITY.

⑦ UNDISTURBED SOIL

⑧ SYMMETRICAL ABOUT CENTERLINE OF TRENCH.

⑨ GRADE SS-1h EMULSIFIED ASPHALT APPLIED AT 0.15 GALLON PER SQUARE YARD.

⑩ EXISTING ASPHALT PAVEMENT FINISHED GRADE, SMOOTHNESS & COMPACTION OF RESURFACING SHALL MEET THE REQUIREMENTS OF SEC 302-5.6.2 SSPWC EXCEPT THAT THE SMOOTHNESS SHALL BE DETERMINED OVER THE LENGTH & WIDTH OF PAVEMENT AREAS DISTURBED BY THE CONTRACTOR'S/ PERMITEE'S OPERATIONS.

⑪ RESPRAY GRADE SS-1h EMULSIFIED ASPHALT AT 0.15 GALLON PER SQUARE YARD 6" WIDE, CENTERED ON EDGE LINE OF GRIND AFTER PLACING A.C. & BEFORE SURFACE TREATMENT.

⑫ SURFACE TREATMENT TO MATCH EXISTING PAVEMENT (E.G. SEAL COAT, CHIP SEAL)

⑬ WHEN THE EDGE OF THE GRIND LINE IS WITHIN 12" OF EDGE OF PAVEMENT, ANY STRUCTURE, AN ADJACENT TRENCH PATCH OR ANY OTHER PAVING JOIN LINE THE 1-1/2" DEEP GRIND SHALL BE EXTENDED TO THE EXISTING STRUCTURE OR JOIN LINE.

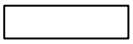
REV.	APPROVED	DATE

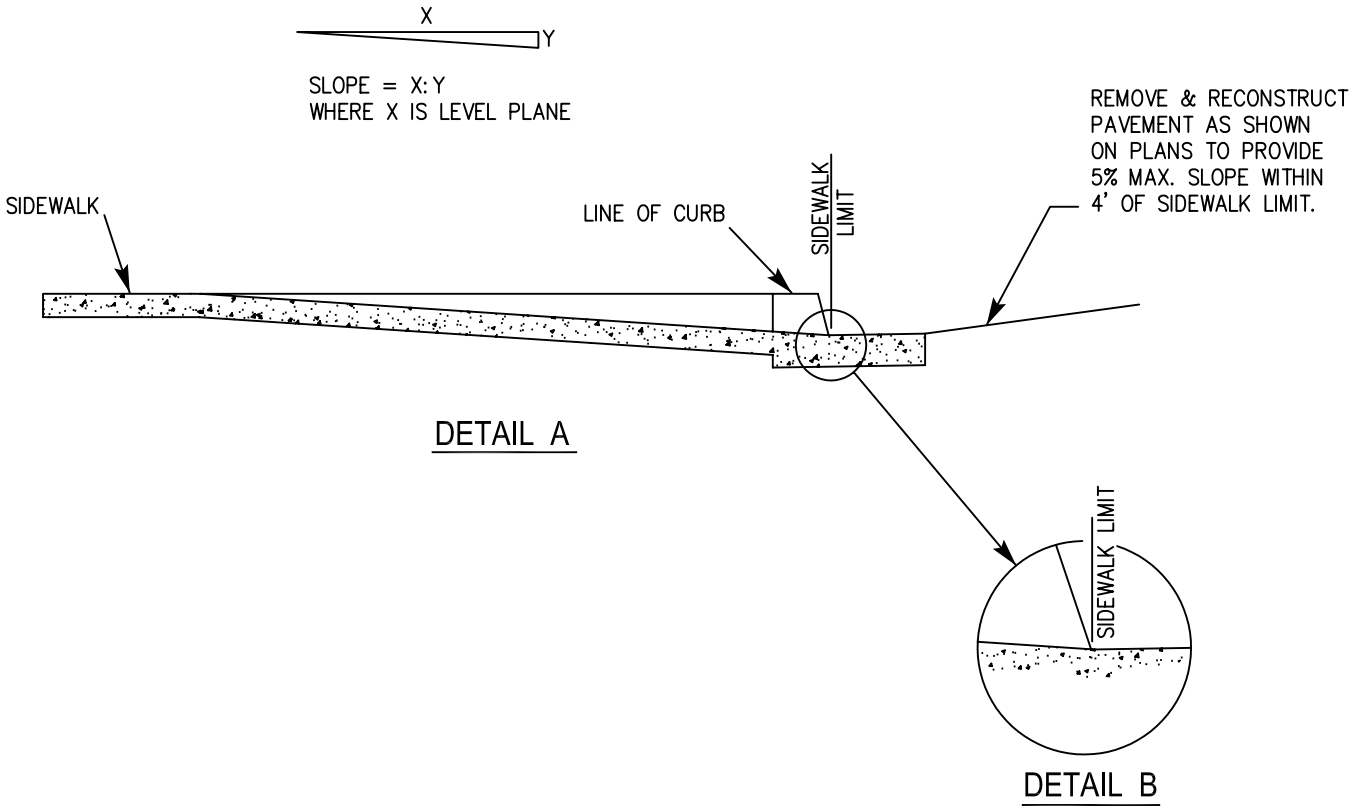
CITY OF CARLSBAD

NARROW TRENCH BACKFILL & ASPHALT CONCRETE RESURFACING

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-24

1. THE REMOVAL OF EXISTING CONCRETE CURB, GUTTER, SIDEWLK AND PAVEMENT FOR PEDESTRIAN RAMP INSTALLATION SHALL COMPLY WITH SDRSD G–11.
2. AREAS SHOWN THUS:  SHALL HAVE A HEAVY BROOM "RIPPLE" TEXTURE FINISH, TRANSVERSE TO AXIS OF RAMP CONTRASTING VISUALLY WITH ADJOINING SURFACES.
3. AREAS SHOWN THUS:  ARE THE MINIMUM REQUIRED FOR A COMPLETE RAMP INSTALLATION AND SHALL BE CONCRETE CLASS 520–C–2500.
4. IF OBSTRUCTIONS SUCH AS INLETS, UTILITY POLES, FIRE HYDRANTS, ETC. ARE ENCOUNTERED, THE RAMP LOCATIONS MAY BE ADJUSTED UPON THE APPROVAL OF THE RESIDENT ENGINEER.
5. RAMP SLOPE SHALL BE A MINIMUM GRADE OF 15:1.
6. THE RAMP SLOPES WILL BE MEASURED RELATIVE TO THE SIDEWALK SLOPE, SEE DETAIL A BELOW. ADJOINING SLOPE BEYOND RAMP SHALL NOT EXCEED 20:1 (5%).



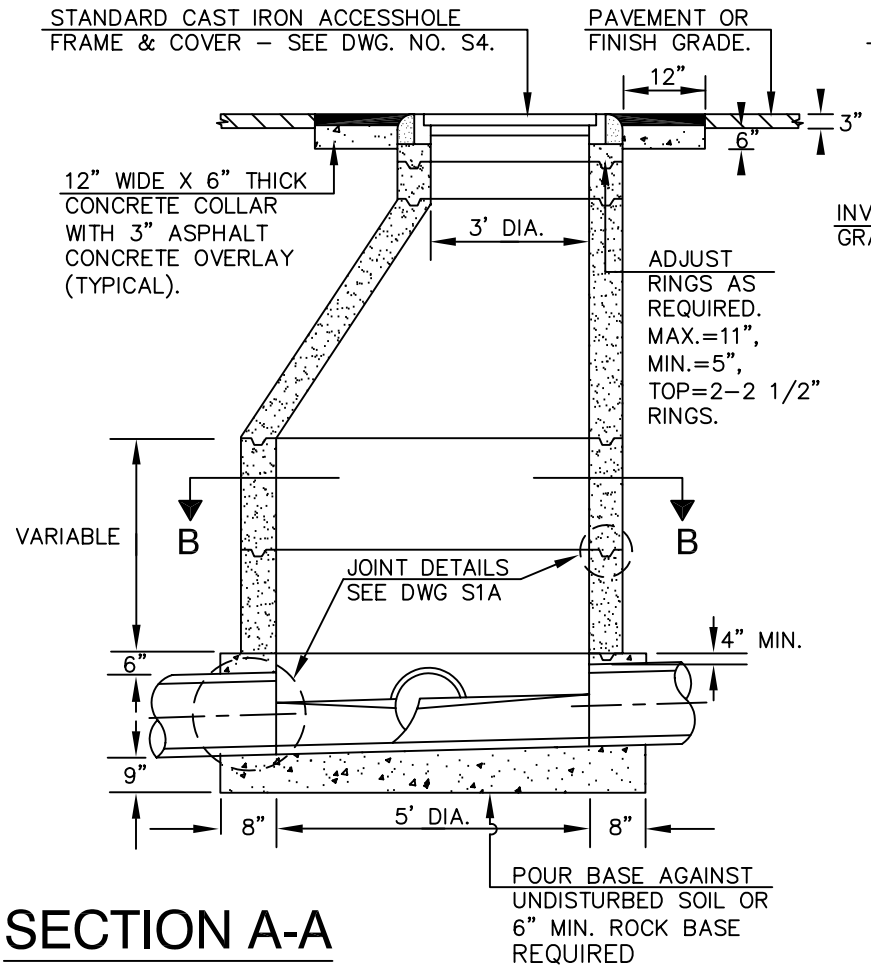
REV.	APPROVED	DATE

CITY OF CARLSBAD

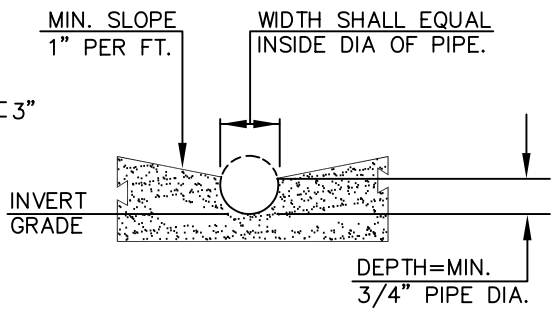
GENERAL NOTES FOR PEDESTRIAN RAMPS

Glenn Pruim 6–04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. GS-32



SECTION A-A



SECTION C-C

NOTES:

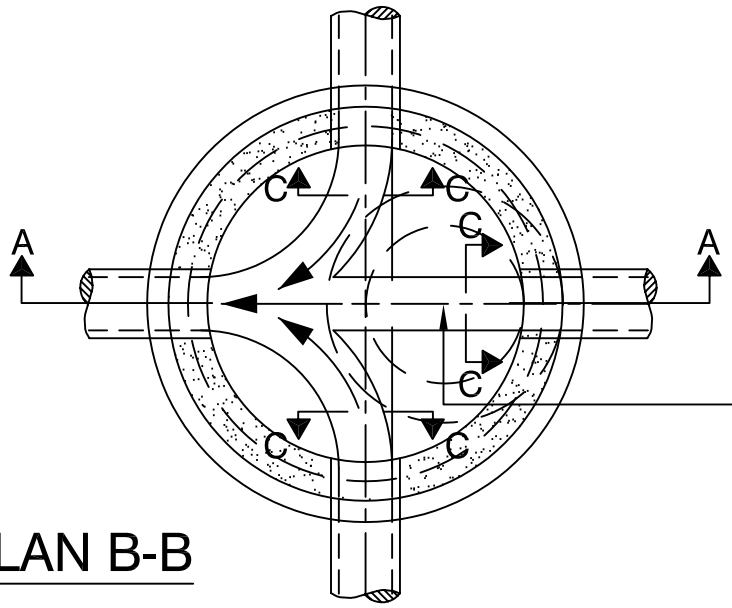
ALL CAST IN PLACE CONCRETE SHALL BE TYPE 564–B–3250.

ALL PIPE IN ACCESSHOLE SHALL BE PVC AND SHALL BE INCLUDED AS PART OF ACCESSHOLE.

ACCESSHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C–478.

STUB OUTS SHALL HAVE A MINIMUM LENGTH OF 2 FEET.

SDR 35 PVC PIPE MAY BE INSTALLED IN STRAIGHT–THROUGH ACCESS HOLES WITH NO JUNCTIONS. THE TOP SECTION OF PIPE SHALL BE REMOVED FLUSH WITH TOP OF SHELF. CUTS SHALL BE NEAT AND DRESSED MINIMIZING BURRS AND ROUGH EDGES.



PLAN B-B

WHEN ACCESSHOLE FORMS THE JUNCTION OF SEWERS AND/OR AN ANGLE IN MAIN ALIGNMENT, SPECIAL CARE SHALL BE USED IN FORMING THE CHANNELS TO FACILITATE THE FLOW OF SEWAGE. INVERTS SHALL BE TRUE TO GRADE AND ALIGNMENT AND FINISHED WITH SMOOTH SURFACE.

NOT TO SCALE

REV.	APPROVED	DATE

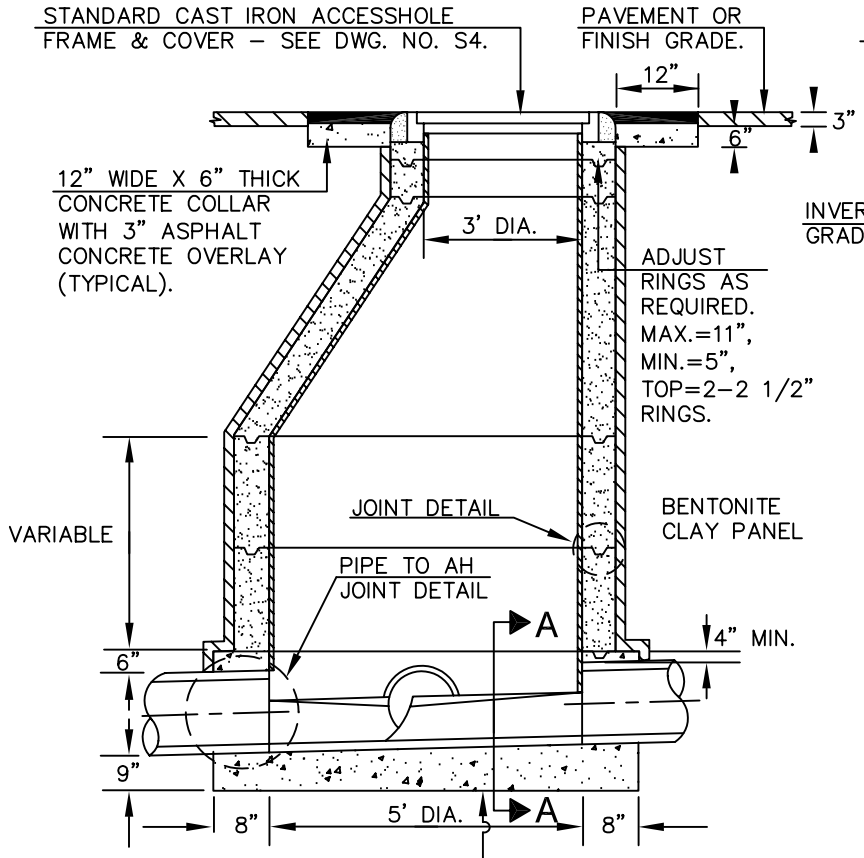
CITY OF CARLSBAD

STANDARD SEWER ACCESSHOLE

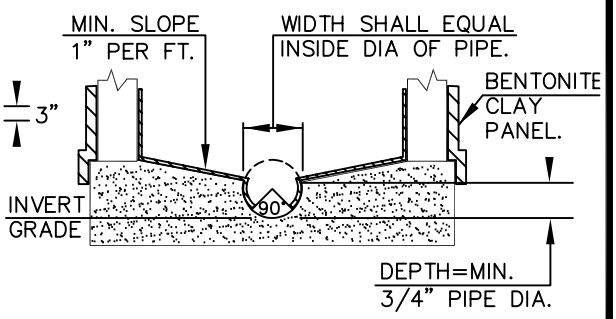
Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. S-1



ACCESS HOLE PROFILE



SECTION A-A

NOTES:

INSTALL 1" WELD STRIPS WHERE T–LOCK IS WELDED; I.E., TOP OF CHANNEL, SHAFT TO SHELF, TURN BACK TO PIPE FACE, CORNERS, ETC.

PVC TURN BACK ON PVC PIPING SHALL BE A MINIMUM OF 6".

PVC TURN BACK SHALL BE HELD TIGHT TO PVC PIPING BY 1/2" STEEL BAND WITH CONTACT CEMENT ADHESIVE APPLIED TO BOTH SURFACES.

INSTALL FLAT SHEET PVC ON SHELVES WITH CONTACT CEMENT ADHESIVE APPLIED TO BOTH SURFACES. OVERLAP PVC ONTO ACCESSHOLE SHAFT AND CHANNEL LINER; WELD TO BOTH AND COMPLETE WITH 1" WELD STRIPS.

INSTALL NONSKID SURFACE ON ACCESSHOLE SHELF.

INSTALL PRE FORMED CORNER TURN BACK UNDER RING.

WELD 4" JOINT STRIPS AND FINISH BOTH EDGES WITH 1" WELD STRIPS.

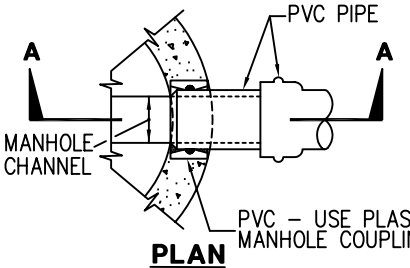
COMPLETE CONCRETE CHANNEL SHALL BE CONSTRUCTED WITH FORMS AND ALL BUT THE LOWER 90° SHALL BE T–LOCK LINED. THE "T'S" SHALL RUN VERTICAL AS IN THE ACCESSHOLE SHAFT AND SHALL BE TACKED AT THE TERMINUS OF THE T–LOCK.

SIDES AND ENDS OF THE BASE TO BE EITHER FORMED, SANDBAGGED OR POURED AGAINST UNDISTURBED EARTH.

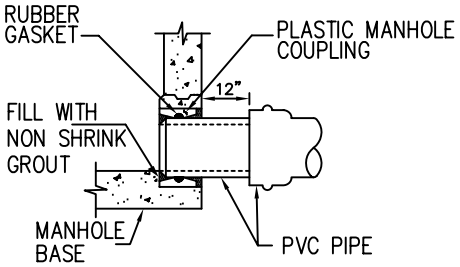
ACCESSHOLE SHELVES TO BE SLOPED 1" PER FOOT TO CHANNEL.

WRAP ACCESSHOLE JOINTS BELOW WATER TABLE WITH BENTONITE GEOTEXTILE WATERPROOFING SYSTEM, VOLCLAY VOLTEX OR APPROVED EQUAL.

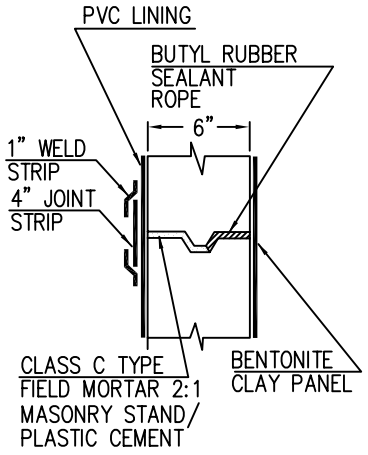
INTERIOR OF ENTIRE ACCESS HOLE (EXCEPT 90°AREA AT BOTTOM OF CHANNEL) WILL BE WITH WHITE T–LOCK OR EQUAL PVC LINER. ALL LINER JOINTS SHALL BE HEAT WELDED BY WELDERS CERTIFIED BY THE PVC MANUFACTURER. LINER WILL BE SPARK TESTED AT 20,000 VOLTS MIN.



PLAN



SECTION A-A



JOINT DETAIL

PIPE TO MANHOLE CONNECTION DETAIL

NOT TO SCALE

REV.	APPROVED	DATE

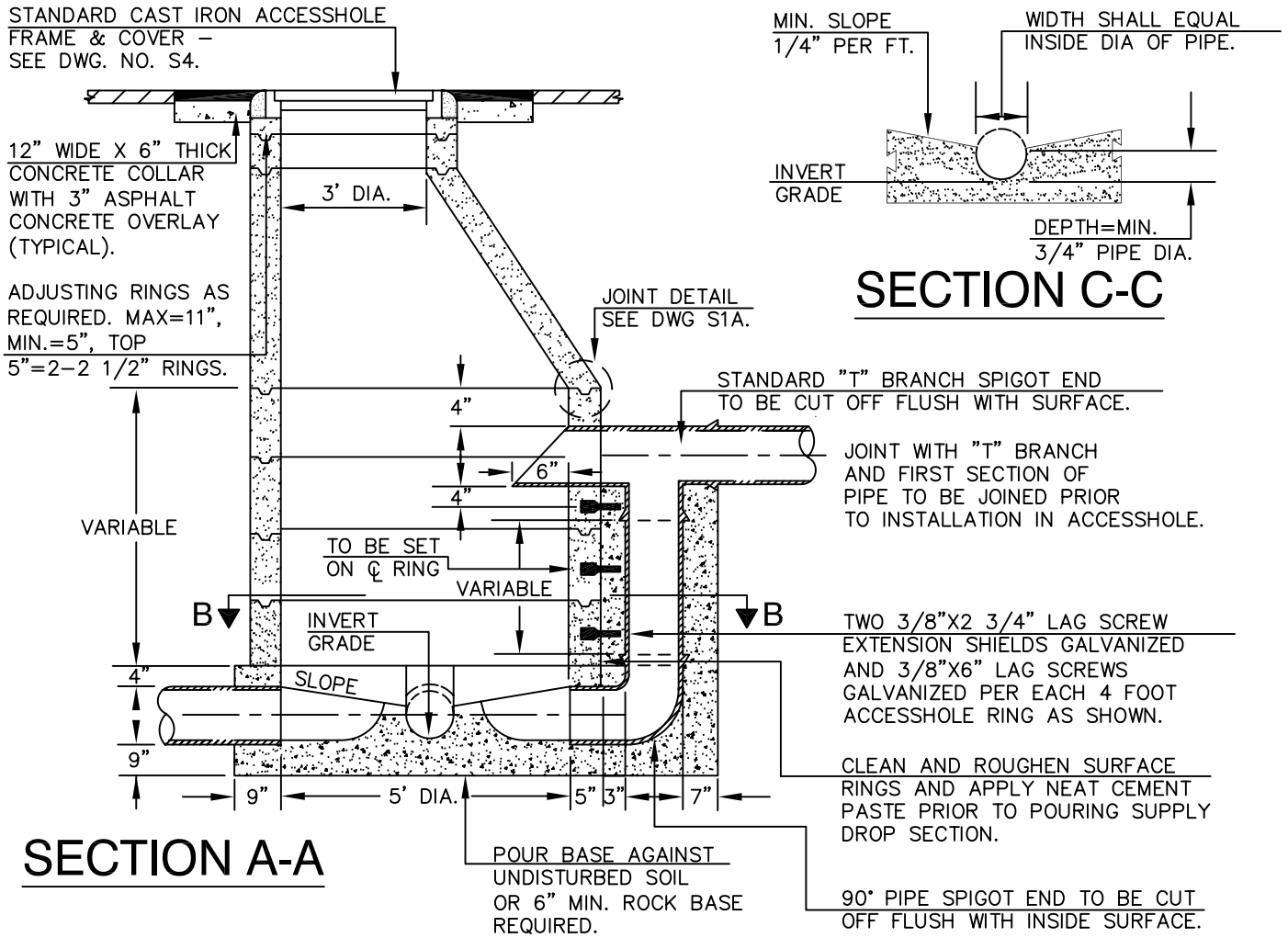
CITY OF CARLSBAD

PVC LINED ACCESSHOLE

Glenn Pruim 6-04

CITY ENGINEER DATE

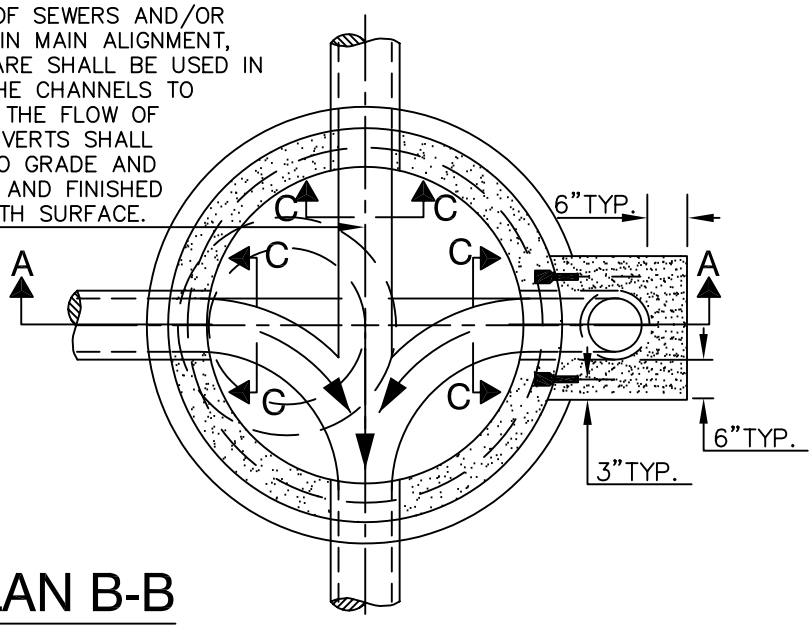
SUPPLEMENTAL STANDARD NO. S-1A



SECTION A-A

SECTION C-C

WHEN ACCESSHOLE FORMS THE JUNCTION OF SEWERS AND/OR AN ANGLE IN MAIN ALIGNMENT, SPECIAL CARE SHALL BE USED IN FORMING THE CHANNELS TO FACILITATE THE FLOW OF SEWAGE. INVERTS SHALL BE TRUE TO GRADE AND ALIGNMENT AND FINISHED WITH SMOOTH SURFACE.



PLAN B-B

NOTES:

ALL CAST IN PLACE CONCRETE SHALL BE TYPE 564–B–3250.

ALL PIPE IN ACCESSHOLE SHALL BE PVC OR VITRIFIED CLAY PIPE AND SHALL BE INCLUDED AS PART OF ACCESSHOLE.

DOUBLE DROP ACCESSHOLE IS CONSTRUCTED THE SAME AS DROP ACCESSHOLE EXCEPT THAT IT HAS TWO DROP SECTIONS.

REV.	APPROVED	DATE

CITY OF CARLSBAD

DROP ACCESSHOLE

Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. S-2

12" WIDE X 6" THICK CONCRETE COLLAR WITH 3" ASPHALT CONCRETE OVERLAY (TYPICAL).

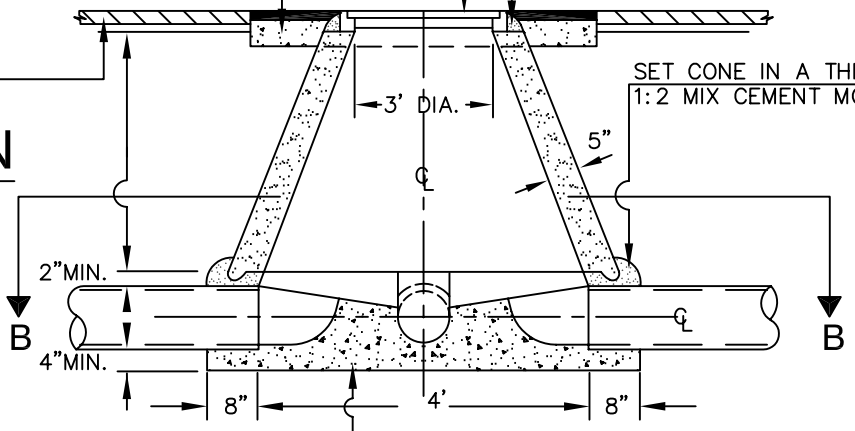
STANDARD CAST IRON ACCESSHOLE FRAME & COVER – SEE DWG. NO. S4.

CEMENT IN PLACE WITH 1:2 MIX CEMENT MORTAR (TYPICAL).

PAVEMENT OR FINISH GRADE.

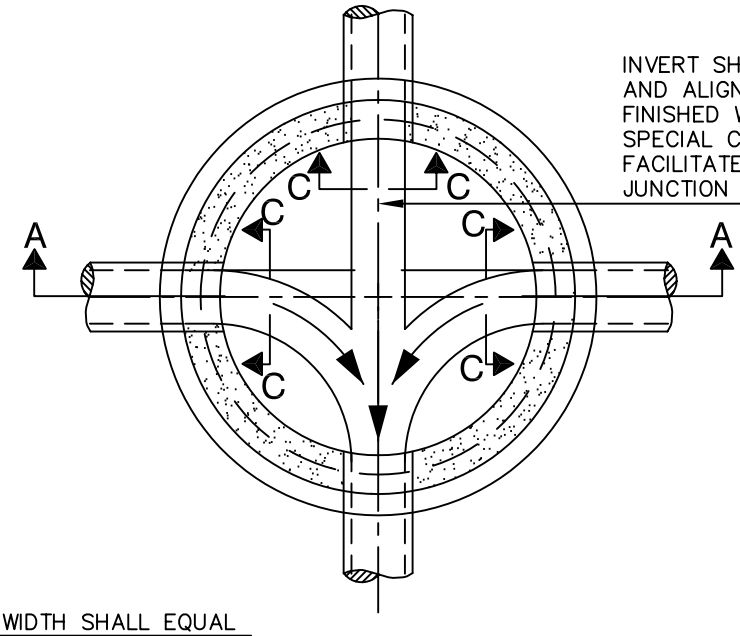
SET CONE IN A THICK BED OF 1:2 MIX CEMENT MORTAR

SECTION A-A

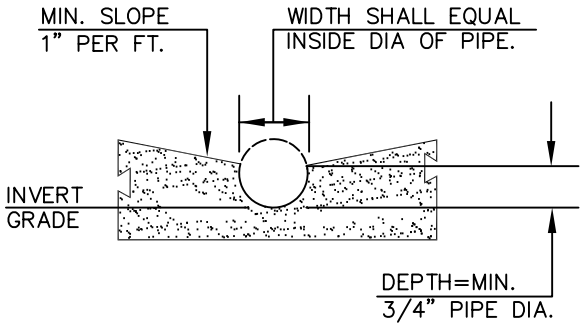


POUR BASE AGAINST UNDISTURBED SOIL OR 6" MIN. ROCK BASE REQUIRED

PLAN B-B



INVERT SHALL BE TRUE TO GRADE AND ALIGNMENT AND SHALL BE FINISHED WITH A SMOOTH SURFACE. SPECIAL CARE SHALL BE USED TO FACILITATE FLOW OF SEWAGE THROUGH JUNCTION CHANNELS.



SECTION C-C

NOTES:

ALL CAST IN PLACE CONCRETE SHALL BE TYPE 564-B-3250.

ACCESSHOLE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM DES-C-478.

STUB OUTS SHALL HAVE A MINIMUM LENGTH OF 2 FEET.

REV.	APPROVED	DATE

CITY OF CARLSBAD

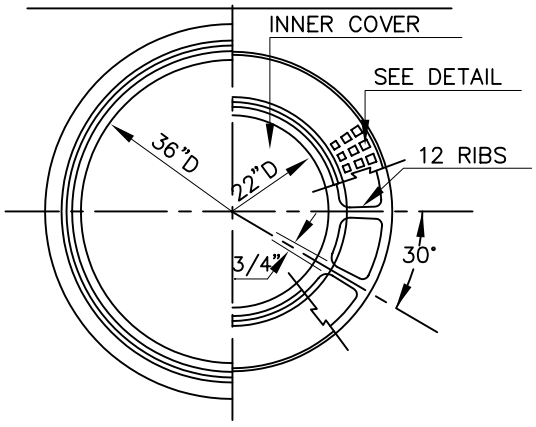
SHALLOW ACCESSHOLE

Glenn Pruim 6-04

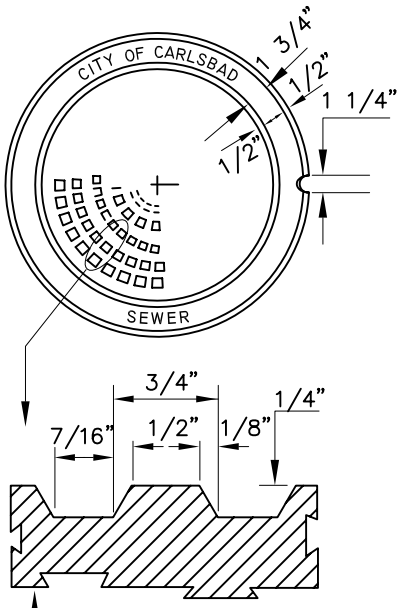
CITY ENGINEER DATE

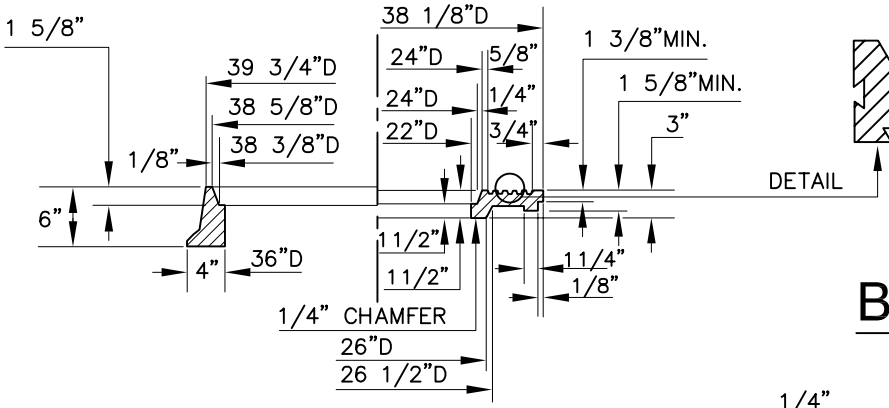
SUPPLEMENTAL STANDARD NO. S-3

HALF PLAN
FRAME & COVER



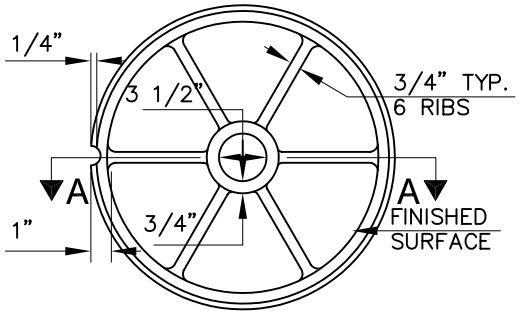
INNER COVER
TOP SIDE





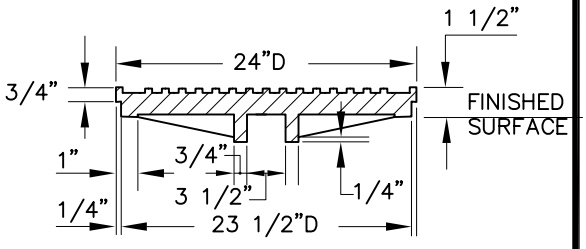
HALF SECTION
FRAME & COVER

BOTTOM SIDE



NOTES:

1. WEIGHTS:
   - INNER COVER =155 LBS.
   - OUTER COVER =300 LBS.
   - FRAME =330 LBS.
2. MATERIAL: CAST IRON.
3. MACHINE SEATS TO PREVENT NOISE.
4. FILLET RADII TO BE 12".
5. IMPORTED COVERS AND FRAMES SHALL HAVE CONTRY OF ORIGIN MARKING IN COMPIANCE WITH FEDERAL REGULATIONS.



SECTION A-A

REV.	APPROVED	DATE

CITY OF CARLSBAD

ACCESSHOLE
FRAME & COVER

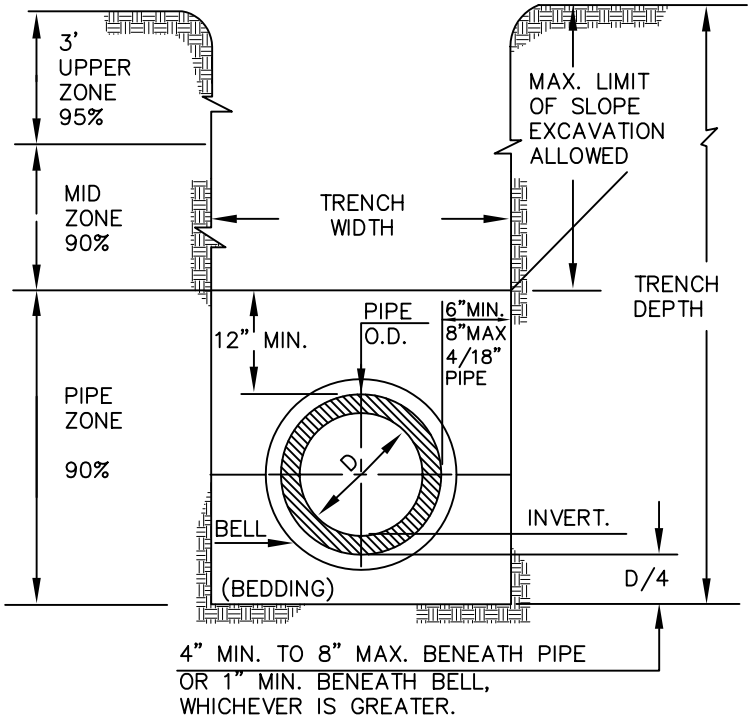
Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. S-4

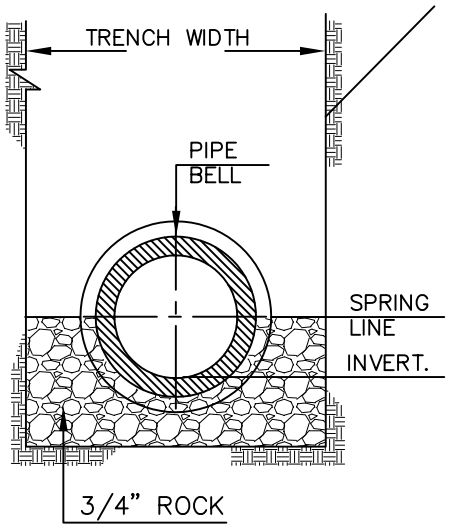
TYPICAL TRENCH SECTION

WITH DIMENSIONS AND COMPACTION ZONES



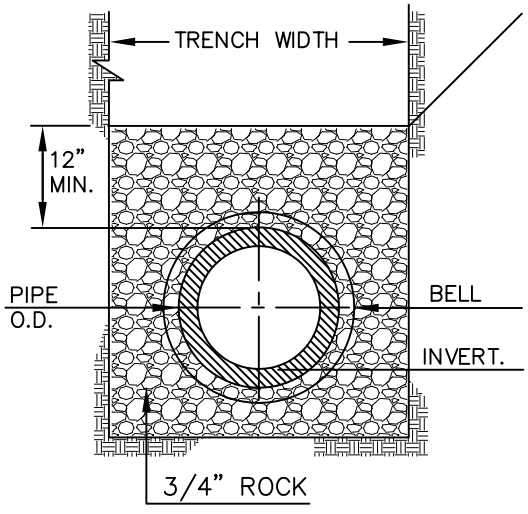
P.V.C. PIPE

ROCK TO SPRINGLINE



P.V.C. PIPE

ROCK ENVELOPE



NOTES:

1. PERCENTAGES SHOWN EQUAL MINIMUM RELATIVE COMPACTION.
2. MINIMUM DEPTH OF COVER FROM TOP OF PIPE TO FINISH GRADE FOR ALL SANITARY SEWER INSTALLATIONS SHALL BE 3 FEET. FOR COVER LESS THAN 3', SPECIAL DESIGN AND APPROVAL REQUIRED.
3. TRENCH BACKFILL (MID ZONE) SHALL BE PER SECTION 306-1.3.1. OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS. CONSTRUCTION (GREEN BOOK) LATEST EDITION. EXCEPT, REGARDLESS OF TRENCH WIDTH, NO ROCKS LARGER THAN 6" IN ANY DIMENSION WILL BE ALLOWED IN BACKFILL. ASPHALT OR CONCRETE CHUNKS WILL NOT BE ALLOWED.

REV.	APPROVED	DATE

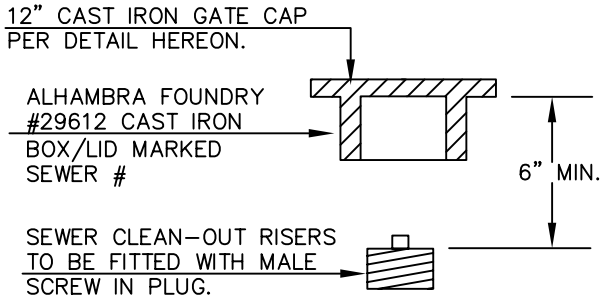
CITY OF CARLSBAD

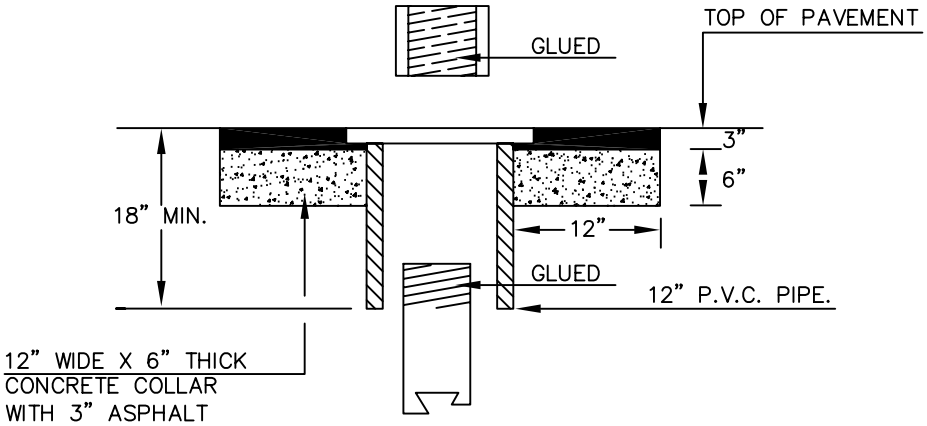
PIPE BEDDING AND TRENCH BACKFILL FOR SEWERS

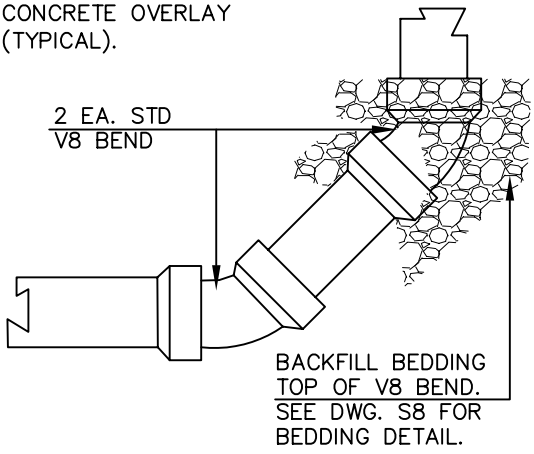
Glenn Pruim 6-04

CITY ENGINEER — DATE

SUPPLEMENTAL STANDARD NO. S-5

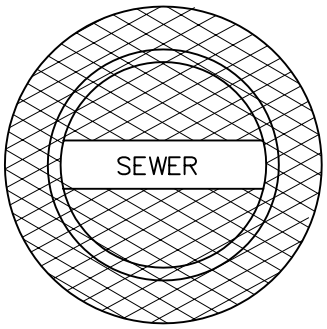


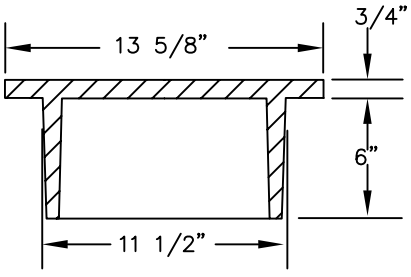




GATE CAP

(HEAVY DUTY)





NOTES:

1. GATE CAP SHALL BE LABELED SEWER.
2. CLEANOUTS MAY BE USED WITH P.V.C. SEWER MAIN.
3. RISER SHALL BE SAME DIAMETER AS SEWER MAIN.

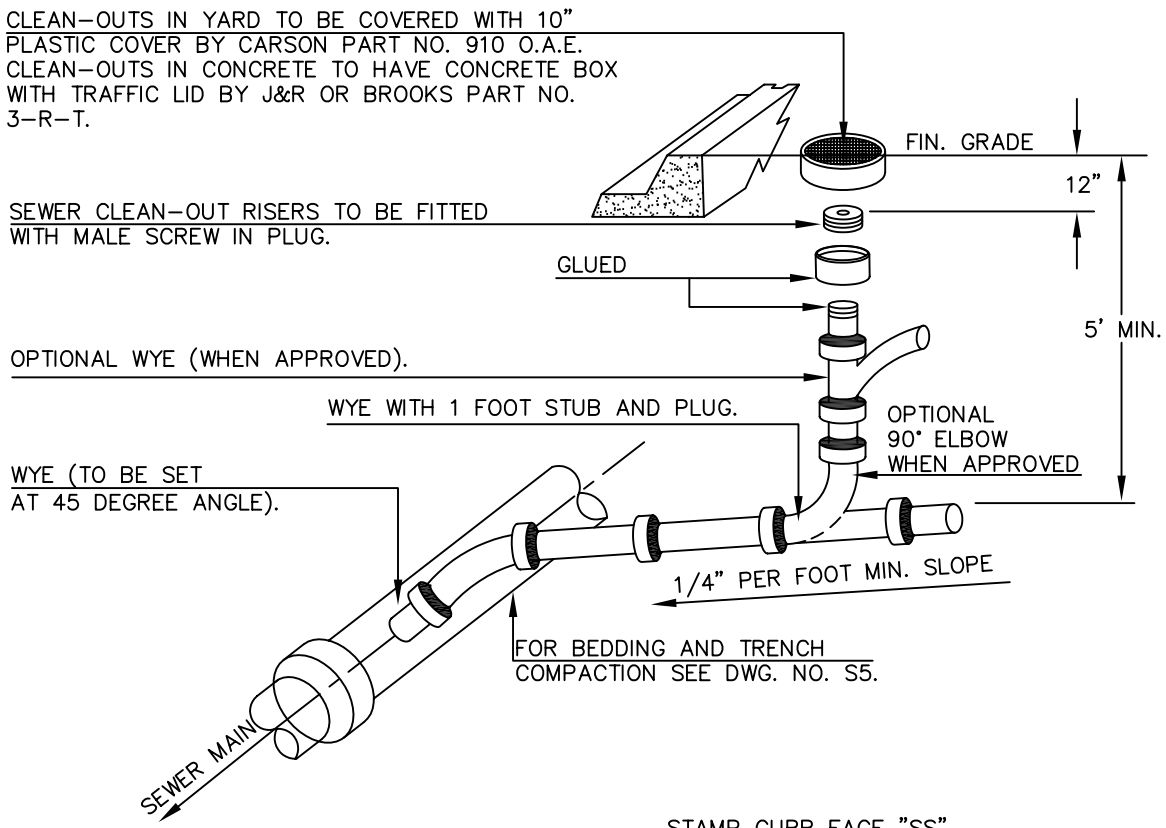
REV.	APPROVED	DATE

CITY OF CARLSBAD

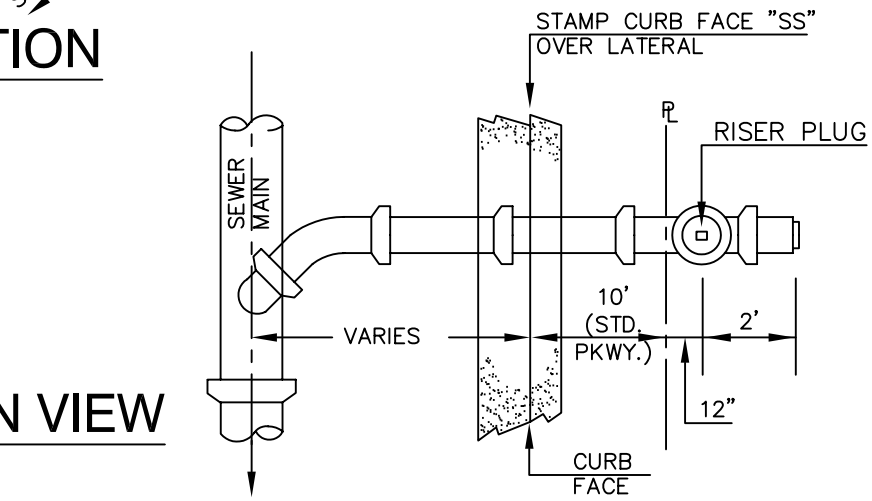
SEWER MAIN CLEANOUT

6-04
CITY ENGINEER — DATE

SUPPLEMENTAL STANDARD NO. S-6



SECTION



PLAN VIEW

NOTES:

1. THE LATERAL SHALL BE BEDDED THE SAME AS THE MAIN LINE SEWER.
2. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
3. SEWER LATERALS SHALL HAVE A 2% MINIMUM SLOPE.
4. ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE OR APPROVED SOLVENT WELD.
5. AS–BUILT SEWER LATERAL LOCATIONS SHALL BE FURNISHED TO THE CITY INSPECTOR ON FORMS PROVIDED PRIOR TO FINAL APPROVAL OF WORK.
6. ALL LATERAL TRENCHES TO PROPERTY LINE AND SEWER MAIN TRENCHES TO BE COMPACTED PER S5.
7. CLEAN–OUT TO BE ADJUSTED TO GRADE AFTER FINAL FINISH GRADING.
8. FOR BACKFILL AROUND CLEANOUT RISER SEE DWG. S–5, NOTE 3.

REV.	APPROVED	DATE

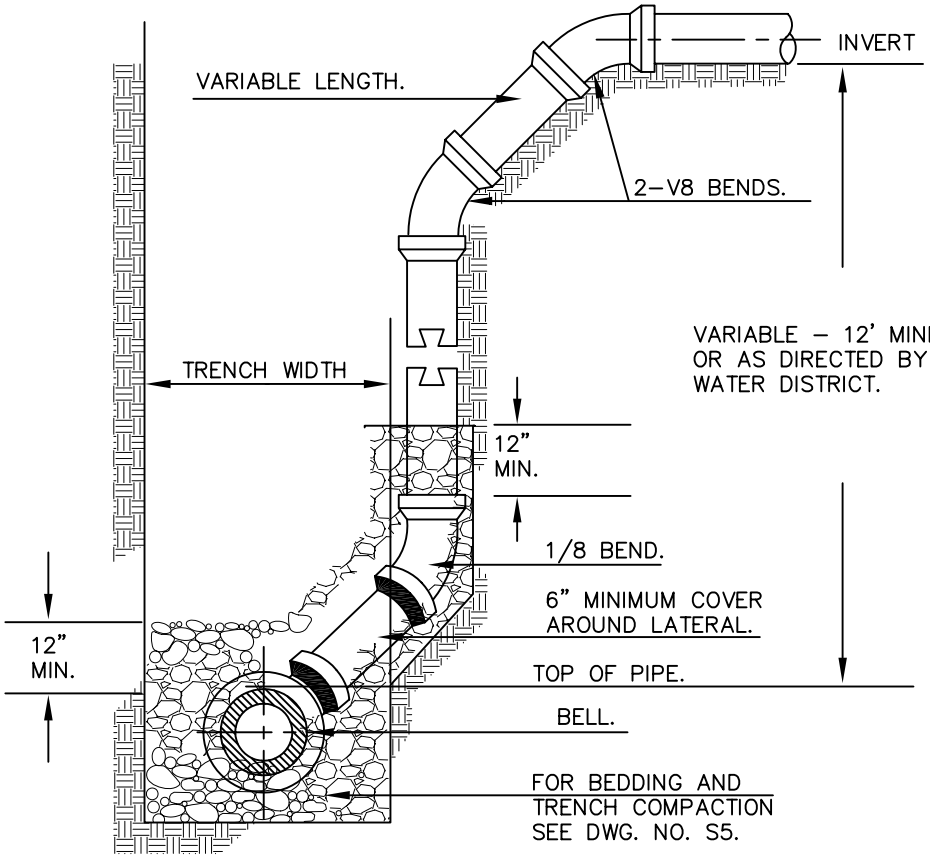
CITY OF CARLSBAD

SEWER LATERAL
(WITH OPTIONAL WYE)

6-04
CITY ENGINEER — DATE

SUPPLEMENTAL STANDARD NO. S-7

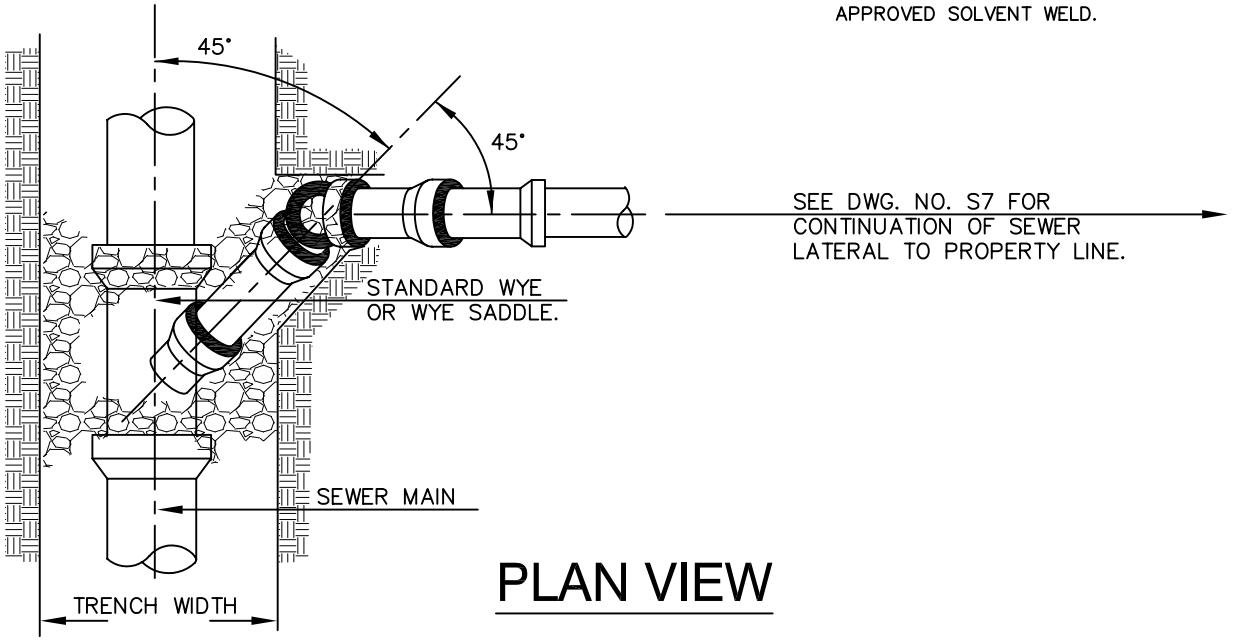
ELEVATION



NOTES:

THE VERTICAL PIPE SHALL BE BRACED WHILE TRENCH IS BEING BACKFILLED.

ALL JOINTS ON SEWER LATERAL PIPE SHALL BE COMPRESSION TYPE OR APPROVED SOLVENT WELD.



PLAN VIEW

REV.	APPROVED	DATE

CITY OF CARLSBAD

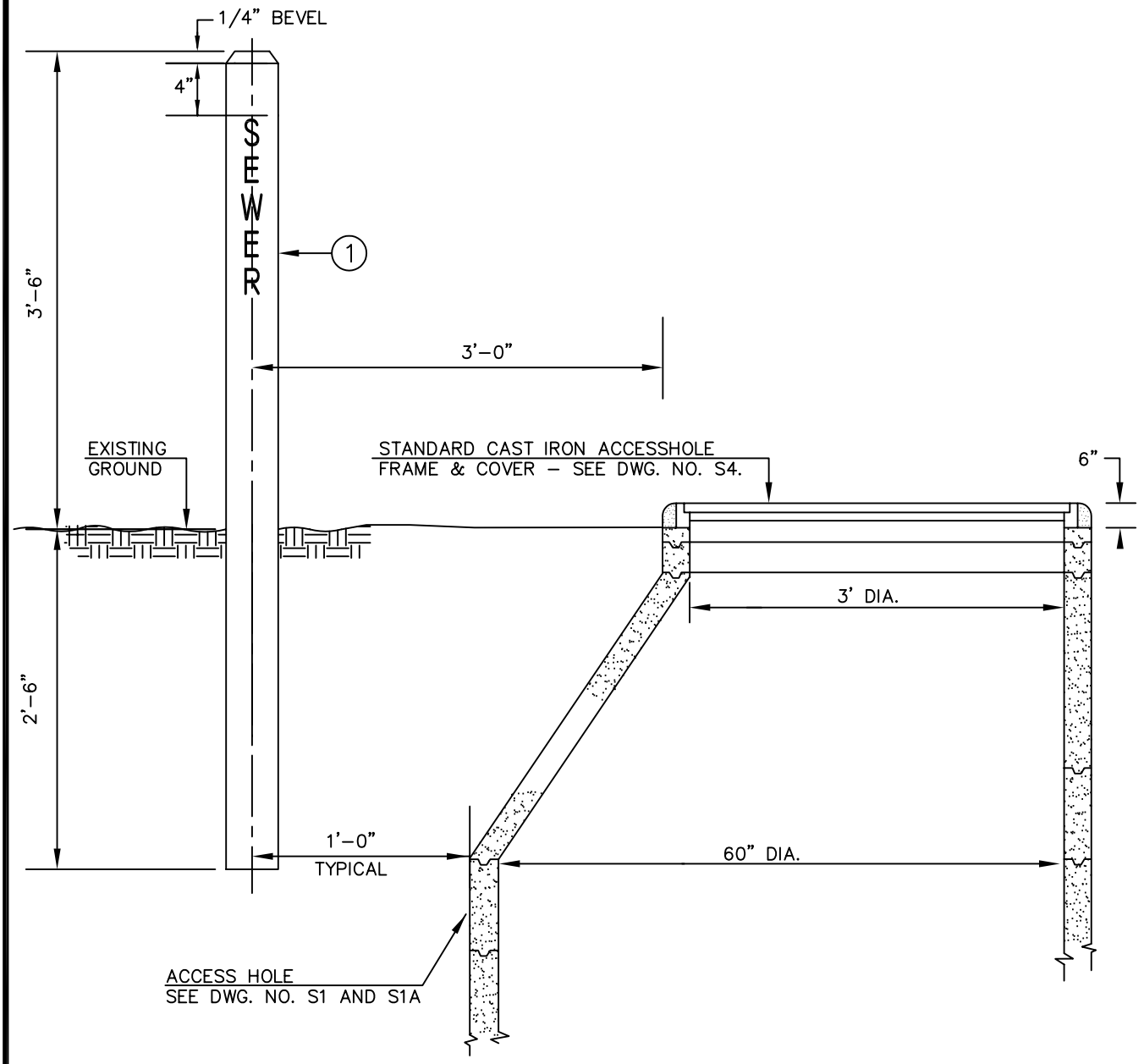
SEWER LATERAL

(DEEP CUT HOUSE CONNECTION)

Glenn Pruim 6-04

CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. S-8



NOT TO SCALE

ITEM	DESCRIPTION	SPEC/DWG
1	4X4" REDWOOD OR PRESSURE TREATED DOUGLAS FIR (S4S).	

REV.	APPROVED	DATE

CITY OF CARLSBAD

ACCESS HOLE
MARKER POST

6-04
CITY ENGINEER DATE

SUPPLEMENTAL STANDARD NO. S-9